



Mr. John Watson  
January 16, 1989  
Page 2

The following individuals from the Kearney/Centaur Division of A.T. Kearney, Inc., will conduct the VSI:

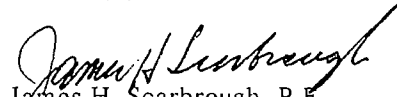
Phebe Davol  
Jeff Evans

The field team will be accompanied by representatives of EPA Region IV and the Tennessee Department of Health and Environment (TDHE):

Alicia Thomas, EPA Region IV, Technical Monitor  
Jim Childress, TDHE

Your cooperation in assisting the contractors and representatives while on site is appreciated. Should you have any questions regarding this letter, please contact Alicia Thomas of my staff at 404/347-7603.

Sincerely yours,

  
James H. Scarbrough, P.E.  
Chief RCRA Branch  
Waste Management Division

Enclosures

cc: A. Thomas, EPA Region IV  
J. Childress, TDHE  
P. Davol, A.T. Kearney, Inc.  
J. Book - CWF

## ATTACHMENT A

### PROPOSED RCRA VISUAL SITE INSPECTION AGENDA

Facility: U.S. Pipe and Foundry  
P. O. Box 6129  
1000 West 19th Street  
Chattanooga, Tennessee 37401

Soil Pipe Division and  
Valve Fittings Plant  
P. O. Box 311  
2701 Chestnut Street  
Chattanooga, Tennessee 37401

EPA ID No: Soil Pipe Division TND 074893777  
Valve Fittings Plant TND 980316301

Facility Contact: John Watson  
U.S. Pipe and Foundry Company  
General Office  
3300 First Ave. North  
Birmingham, AL 35202  
(205) 254-7434

Jim Book  
U.S. Pipe and Foundry  
Valve and Fittings Plant  
P.O. Box 311  
Chattanooga, TN 37401  
(615) 265-4611

Date of Inspection: January 23 and 24, 1989

Personnel Making Inspection:

Phebe Davol	A. T. Kearney, Inc.	703/683-7932
Jeff Evans	A. T. Kearney, Inc.	703/683-7932
Alicia Thomas	U.S. EPA Region IV	404/347-7603
Jim Childress	TDHE	615/624-9921

### PURPOSE OF VISUAL SITE INSPECTION:

The Hazardous and Solid Waste Amendments (HSWA) of 1984 broaden EPA's authority under RCRA to require corrective action for releases of hazardous wastes and solid wastes containing hazardous constituents at facilities that manage hazardous wastes. The corrective action authority extends to all solid waste management units (SWMUs) at the facility. The first phase of the corrective action program as established by EPA is performance of a RCRA Facility Assessment (RFA). The RFA includes a preliminary review of available file information, a visual site inspection (VSI) of the facility, and, if necessary, a sampling visit. A preliminary review of file material has been performed for this facility, and a VSI has been determined to be necessary. The purposes of the VSI are:

1. To collect all available, relevant information on solid waste management practices that have been used on the site;

U.S. Pipe and Foundry.  
Soil Pipe Division and  
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Chattanooga, Tennessee  
Proposed RCRA Visual Site Inspection Agenda

2. To gain first-hand information as to the identification, location, construction, configuration, function served, method of operation, and condition of each SWMU;
3. To confirm, by visual inspection, information collected during the file review;
4. To survey the site for additional SWMUs and other areas of concern not identified in the review of file material;
5. To identify potential sample points for possible future sampling activities;
6. To review the site information and collect additional information to address the information needs identified during the file review; and,
7. To take photographs of all SWMUs and other areas of concern.

#### **INSPECTION PLAN**

A. T. Kearney personnel will form a two-member team accompanied by State and EPA Regional representatives to perform a two-day inspection. The team will inspect waste generation areas in production facilities, as well as waste handling, storage, treatment, and disposal areas on site. The team will also inspect potential pathways for release of wastes into the environment. Facility staff will be interviewed to develop a better understanding of past and present waste management practices. Any available environmental monitoring or sampling data for characterization of the soils, groundwater, surface water (or runoff), and air quality of the site, also will be reviewed.

#### **INSPECTION SCHEDULE**

The schedule which follows has been prepared based on the file review and is intended to allow a visual inspection of all SWMUs and other areas of concern on the site. The schedule may be adjusted as necessary at the time of the visit to accommodate unforeseen conditions.

The overall rationale of this inspection plan is to enable the team to inspect the entire facility. Some adjustments to the agenda may be necessary and can be made when on site to accommodate facility staff, geographical locations of units, and/or operational constraints.

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<u>Time</u>	<u>Activity</u>
January 23, 1989	Soil Pipe Division and Landfill
9:00 a.m.	Introductory meeting with facility representatives to discuss agenda, and safety and health considerations.
9:30 a.m.	Review additional information needs pertaining to solid waste management units identified during the file review including discussions of past and present production processes which generate waste streams.
10:00 a.m. – 12:00 noon	Tour and explanation of facility/processes which may generate waste streams. Begin site inspection at the point where raw product is received by the facility.
12:00 noon – 1:00 p.m.	Lunch
1:00 p.m. – 5:00 p.m.	Tour site perimeter and any waste handling areas not previously identified.
January 24, 1989 – Valve and Fitting Plant	
9:00 a.m. – 12:00 p.m.	Continue with tour of facility/processes which may generate waste streams.
12:00 p.m. – 1:00 p.m.	Lunch
1:00 p.m. – 3:00 p.m.	Tour site perimeter and any waste handling areas not previously identified.
3:00 p.m. – 4:30 p.m.	Closing meeting with facility contacts. Discuss information needs still outstanding or generated during the VSI.

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The following list of potential SWMUs is based on information gathered during a desk-top review of U.S. EPA Region IV and State of Tennessee file material. If any of the units listed no longer exists, the locations of the former units should be identified by facility representatives during the VSI. Likewise, units defined as areas where solid wastes, both hazardous and non-hazardous, are treated, stored or disposed; and units where raw material is stored; and units where product material is stored, handled, and transferred, should be identified by facility representatives during the VSI.

**PRELIMINARY LIST OF SWMUs NOTED DURING FILE REVIEW**

Soil Pipe Division

1. Landfill
2. Landfill Discharge Pipe
3. Former Outfall
4. Tar Storage Areas
5. Tar Dipping Tank Trench and Sump
6. Paint Waste Accumulation Area
7. Paint Drip Collector
8. Paint Waste Accumulation Area
9. Phenol and Formaldehyde Accumulation Area
10. Phenol and Formaldehyde Mixing Area - Muller
11. Phenol and Formaldehyde Mixing Area - Core Machines
12. Corregated Pipe Beneath Landfill
13. Wastewater Treatment System
14. Sludge Drying Beds
15. Sludge Roll-Off Box
16. Cupola Baghouse
17. Cupola Baghouse Hoppers 1-15
18. Cupola Baghouse Dust Conveyor
19. Cupola Baghouse Dust Truck Loading Area
20. Cupola Baghouse Dust Silo
21. Cupola Baghouse Dump Trucks

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Soil Pipe Division (cont'd)

- 22. Cupola Baghouse Dust Processor
- 23. Industrial Sweepers
- 24. Sanitary Sewer
- 25. Waste Core Pile
- 26. Slag Pond Overflow
- 27. Scrap Metal Pile

**PRELIMINARY LIST OF AOCs NOTED DURING FILE REVIEW**

- A. Pig Iron Storage Area

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**PRELIMINARY LIST OF SWMUs NOTED DURING FILE REVIEW**

Valve and Fittings Plant

1. Brass Grinding Collection Area
2. Ductite Iron Baghouse
3. Ductite Iron Baghouse Conveyor
4. Sanitary Sewer
5. Storm Sewer
6. Outfall 001
7. Oil Skimmer Outfall 001
8. Outfall 002
9. Paint Drip Collector
10. Paint Waste Accumulation Area
11. Spray Booths
12. Slag Water Sump
13. Cupola Baghouse
14. Cupola Baghouse Hoppers
15. Cupola Baghouse Conveyor
16. Cupola Baghouse Dust Truck Loading Area
17. Cupola Baghouse Dust Silo
18. Cupola Baghouse Dust Processor
19. Slat Water Sump ?
20. Phenolic Resin, Cold Box Resin and Catalyst Accumulation Area
21. Lead Dross Accumulation Area
22. Lead Dross Drum Storage Area
23. DCE Voles Baghouse - *CSP*
24. Griffin Baghouse - *CSP*
25. Apron Conveyor Baghouse
26. Wet Collector
27. Sly 79 Baghouse - *CSP*
28. Zurn Baghouse - *CSP*

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**PRELIMINARY LIST OF SWMUs NOTED DURING FILE REVIEW**

Valve and Fittings Plant (cont'd)

- 29. Cleaning Shed Rotoclones
- 30. Grinder Booth Baghouse
- 31. Stacks
- 32. #9 Unit Cyclone
- 33. #2 Drip Painting Line
- 34. Pangborn Blast Cleaner Baghouse
- 35. Binks Water Wash Booth

**PRELIMINARY LIST OF AOCs NOTED DURING FILE REVIEW**

- A. Brass Alloy Storage Area
- B. Lead Ingot Storage Area

## ATTACHMENT B

### LIST OF ADDITIONAL INFORMATION NEEDS

U.S. Pipe and Foundry  
Chattanooga, Tennessee

#### I. General Facility Information Needs

Unless information needs are designated by (SP) Soil Pipe Division or (VF) Valve and Fitting Plant, the information requested shall refer to by both facilities.

1. Recent facility map showing site boundaries indicating locations of solid waste management units identified during the file review and listed on the preceding page.
2. Identification of past or present solid waste management units which have not been previously identified in the proposed VSI agenda. Include a brief description of wastes managed in these units and the period of operation. These include:
  - Former waste holding, storage and treatment areas.
  - All waste and product transfer areas, and associated activities including loading zones and waste accumulation areas.
3. Provide information regarding ownership status, and a history of the facility.
4. Provide construction or design plans, and current status of the Landfill (SP).
5. Provide inventory of all paints, coatings, and solvents used, and disposition of waste materials.
6. Provide a flow diagram of the wastewater process, and describe current method of handling stormwater run-off.
7. Identify which process lines employ spinning molds (SP).
8. Provide procedures for unloading cupola baghouse dust.
9. Provide copies of Monthly Discharge Rates (MPRs) submitted to TDHE, Nashville since 1985 (VF).
10. Describe solidification or other process employed to render the cupola baghouse dust non-toxic or suitable for disposal.
11. Provide drilling log data from the monitoring wells located around the Landfill.
12. Provide groundwater analysis data from the monitoring wells located on the Landfill.

U.S. Pipe and Foundry.  
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LIST OF ADDITIONAL INFORMATION NEEDS (continued)

14. Provide information regarding railcar chemical unloading procedures such as prevention of spillage, clean-up methods, and delivery frequency.
15. Provide Underground Storage Tank Notification or identify location of any current or former underground storage tanks (if any), and integrity tests performed.
16. Provide a listing of catalysts and resins used during mold making and foundry process and a list of other solvents and chemicals used at the facility.
17. Provide information regarding disposition of non-hazardous wastes produced during all foundry processes.
18. Provide current and historical diagrams showing industrial and sanitary sewer lines, wastewater pipelines, and stormwater pipelines at the facility, and most current integrity tests performed.
19. If available, provide SARA list of raw materials used at the facility, and Title III list of emissions..
20. Provide descriptions and/or diagrams of all processes performed at the facility.
21. Provide RCRA Part A application.
22. Provide Hazardous Waste Notification Form.

II. Potential SWMU Information Needs

1.
  - a) location in facility
  - b) dates of operation
  - c) design features
  - d) volume and description of wastes managed
  - e) history of release to environment
  - f) regulatory status

**INSPECTION SCHEDULE**

The schedule which follows has been prepared based on the file review and is intended to allow a visual inspection of all SWMUs and other areas of concern on the site. The schedule may be adjusted as necessary at the time of the visit to accommodate unforeseen conditions.

U.S. Pipe and Foundry.  
Soil Pipe Division and  
Valve Fittings Plant  
Chattanooga, Tennessee  
Proposed RCRA Visual Site Inspection Agenda

The overall rationale of this inspection plan is to enable the team to inspect both facilities and the landfill. Some adjustments to the agenda may be necessary and can be made when on site to accommodate facility staff, geographical locations of units, and/or operational constraints.

*Copies to: W.E. Fleck  
H.G. Reynolds*

SEP 18 '85



*Rec. 9-27-85*

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

September 11, 1985

James Scarbrough, Chief  
Residuals Management Branch  
U. S. Environmental Protection Agency  
345 Courtland Street  
Atlanta, GA 30365

Re: Rulemaking Assistance

Dear Mr. Scarbrough:

As I am sure you recall, your office and this Division have been in disagreement over the applicability of the exclusion for "Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels" to the cupola furnace fly ash produced by both U. S. Pipe and Foundry and Wheland Foundry in Chattanooga, Tennessee. Your agency has interpreted this language so as not to include the foundry fly ashes, thus subjecting the wastes to full regulation as hazardous wastes. We have been unable to reasonably reach that conclusion, despite the fact that our regulatory language is identical to yours. Consequently, as we have advised you, we have been dealing with these wastes principally pursuant to our authorities and responsibilities under our non-hazardous Solid Waste Management Program. However, as we had previously committed to you, we have initiated rulemaking action to revise our regulatory language to enable us to also say that the exclusion does not apply to the wastes in question.

In early August, 1985, we distributed for public review and comment copies of draft regulations proposing to amend our State hazardous waste regulations, principally so as to "catch us up" with the EPA regulations. Included in these draft regulations was a proposal to substitute the word "solely" for the word "primarily" in the above-quoted exclusion language. We believe that this change in wording would clearly remove any possibility of the exclusion applying to the foundry fly ashes and would enable us to apply the full brunt of the hazardous waste regulatory program as your Agency desires. However, this proposal has generated quite a bit of opposition, and not only from the two industries directly affected. I am attaching copies of the public comments we have received on this issue.

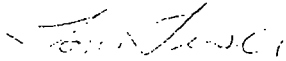
We intend to present the finalized regulatory amendments to our Board for adoption on October 2, 1985. We expect to have considerable difficulty in convincing the Board that an amendment to the exclusion language is necessary, particularly since we don't understand the basis for your agency's position on this issue. We therefore request that you or some other ranking EPA staff person(s) be present at the Board meeting to present EPA's position.

Page 2.

I am sending a copy of this letter to those persons who submitted comments on this issue, both to advise them of this request and of the date of the Board meeting.

Please contact Dwight Hinch of my staff if further information is needed.

Sincerely,



Tom Tiesler, Director  
Division of Solid Waste Management

TT/DH/ah L/1

Attachments (5)

Copy w/o attchmts:

- ✓ James C. Wright, (representing) U.S. Pipe and Foundry Company
- Hugh J. Moore, Jr., (representing) Wheland Foundry
- J. C. Edwards, Tennessee Eastman Company
- Ernest C. Blankenship, Tennessee Manufacturers and Taxpayers Association
- Rafael B. Bustamante, Chairman, Tennessee Solid Waste Disposal Control Board



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

*Copies to: W. E. Fleck  
Wayne Berry  
Jim Smallwood*

ENVIRONMENTAL SERVICE

June 12, 1986

JUN 19 1986

Mr. John H. Watson  
United States Pipe and Foundry Company  
3300 First Avenue, N.  
Birmingham, AL 35202

Dear Mr. Watson:

I have reviewed the information in your file and your variance request, dated April 16, 1986, concerning the lead dross generated at the Chattanooga Valve and Fittings Plant.

In applying the amended definition of waste to all the information about Chattanooga Valve and Fittings' lead dross, it is determined the dross would not be considered a waste. As I understand the information you have provided, the lead dross is a characteristic, rather than a listed, by-product which is being used directly in producing brass alloys. Lead dross managed in this way will, under our amended definition of waste, not be considered waste and therefore, not subject to regulation.

If the waste or the way it is managed changes, the lead dross could become waste and subject to regulation. To keep your non-waste classification for the lead dross valid it will be necessary to keep this office informed of any changes so it can be determined if your non-waste classification is affected.

If you have any questions, please contact me.

Sincerely,

Tom Yates  
Division of Solid Waste Management

TY/ljb 3/16

cc: Chattanooga Field Office  
Chattanooga Valve and Fittings Plant

6-23-86

*Note for Wayne & Jim:*

*Please advise me if you change your current method  
of handling the lead dross at the valve plant!*  
*John Watson*

MWPS002014

**UNITED STATES PIPE AND FOUNDRY COMPANY**

GENERAL OFFICE

3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

April 16, 1986

Commissioner, Tennessee Department of Public Health  
c/o Division of Solid Waste Management  
Fourth Floor, Customs House  
701 Broadway  
Nashville, Tennessee 37219

Re: Chattanooga Valve and Fittings Plant  
TND-98-031-6301  
Variance for Recycled Hazardous Waste  
(Dross from Lead Melting Pot)

Gentlemen:

In accordance with your letter of January 23, 1986 and the excerpt of "variance amendments" under Rule 1200-1-11-.01 attached thereto, we are hereby filing this variance request for a waste that meets the criteria of Rule 1200-1-11-.01(4)(a)3.

The subject waste is currently covered by a tentative resource recovery exclusion under former Department Rule 1200-1-11-.01(3)(d). For your convenience in reviewing this request, I have attached the following correspondence:


1. Letter from Mr. Tom Yates of the DSWM dated August 23, 1985, advising us of the tentative granting of the resource recovery exclusion under your former Rules.
2. Our original petition to the Commissioner, dated May 23, 1985, requesting the exclusion.
3. Letter from R. Lavin & Sons (our supplier actually performing recovery operation) dated May 21, 1985, outlining their process for reclaiming the lead from our waste.

Commissioner  
Tennessee Dept. of Public Health - 2 -

April 16, 1986

I trust the above provides the necessary documentation to obtain the variance; however, should you need additional information, please let me know.

Yours truly,



John H. Watson  
Principal Environmental Engineer

JHW/js

Encls.

cc: Mr. W. E. Fleck  
Mr. C. N. Coddling  
Mr. W. A. Berry  
Mr. J. Smallwood



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

ENVIRONMENTAL SERVICE  
FEB 13 1986

DATE: January 24, 1986

TO: All Hazardous Waste Generators

FROM: Division of Solid Waste Management

SUBJECT: "Superfund Fee Resource Recovery Exclusions"

*By May 1, 1986!*

\* In the past for hazardous waste which was recycled, reclaimed or reused to qualify for an exclusion from the Superfund Fee it was required that the generator have in effect a resource recovery exclusion. Due to regulation and policy changes this will no longer be required. When the next Superfund Fee Worksheet (1986-87) is mailed out a special form will be included. If your hazardous waste is recycled, reused or reclaimed all that will be necessary to qualify for the Superfund Fee Exclusion will be to fill out the special form and return it with the Superfund Fee Worksheet. The exclusion from the Superfund Fee will be handled entirely separate from any type of regulation exclusion or variance. An exclusion from the Superfund Fee will not be contingent on the generator having been granted an exclusion or variance from regulations.

If you have questions contact Glen Pugh at (615) 741-6287 or Tom Yates at (615) 741-3424.

TDY/aff 5-22

*\* CVF Plant - Lead Dress*



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

DATE: January 23, 1986

TO: Hazardous waste generators and others who now have tentative or final recovery exclusions

FROM: Division of Solid Waste Management

SUBJECT: Variance for recycled hazardous waste

EPA has over the past several months made many changes in their regulations governing hazardous waste. These EPA changes have necessitated amendments to Tennessee's hazardous waste regulations so that they will be at least equal to EPA's regulations. These amendments are due to become effective February 2, 1986.

Among the changes resulting from the amendments is the deletion of the resource recovery exclusion and the petition process pertaining to it. This means that after February 2, 1986 the resource recovery exclusion will no longer exist. The amendments do provide for a variance, when certain criteria are met, for some hazardous waste that is recycled. The amendments also provide a 90 day period from the effective date of the amendments for those who now have a resource recovery exclusion (either tentative or final) to apply for a variance without losing their exclusion. The current resource recovery exclusions will become invalid for those facilities that do not apply for a variance within the 90 day period. The 90 day period will expire the first of May 1986.

Copies of the entire regulations, as amended, are not yet available. Therefore, I have attached excerpts from the amendments which address the variance and the temporary variance for hazardous wastes previously granted a resource recovery exclusion.

You will notice in the variance amendment there are 3 basic criteria at least one of which must be met to qualify for the variance. The amendment also outlines what information to include under each of the 3 basic criteria when applying for the variance. There will be some situations where a waste that qualified for a resource recovery exclusion will not fit any of the 3 basic criteria given in the amendment. These wastes will become subject to regulation when the variance is denied if it is requested.

An exclusion from the Superfund fee has been one of the benefits of the resource recovery exclusion. The Superfund fee exclusion will now be handled separately from regulation exclusions or variances therefore, a variance will not be necessary to qualify for an exclusion from the Superfund fee.

An excerpt of regulations pertaining to variances and temporary variances from a draft of regulation amendments to take effect February 2, 1986.

Rule 1200-1-11-.01.

(4) "Variances from Classification as a Waste"

- (a) General - In accordance with subparagraphs (b) and (c) of this paragraph, the Commissioner may determine on a case-by-case basis that the following recycled materials are not wastes:

- X1. Materials that are accumulated speculatively without sufficient amounts being recycled (as defined in Rule 1200-1-11-.02(1)(a)3(viii);
- X2. Materials that are reclaimed and then reused within the original primary production processes in which they were generated;
- 3. Materials that have been reclaimed but must be reclaimed further before the materials are completely recovered.

(b) Standards and Criteria

- 1. The Commissioner may grant requests for a variance from classifying as a waste those materials that are accumulated speculatively without sufficient amounts being recycled if the applicant demonstrates that sufficient amounts of the material will be recycled or transferred for recycling in the following year. If a variance is granted, it is valid only for the following year, but can be renewed, on an annual basis, by filling a new application. The Commissioner's decision will be based on the following standards and criteria:
  - (i) The manner in which the material is expected to be recycled, when the material is expected to be recycled, and whether this expected disposition is likely to occur (for example, because of past practice, market factors, the nature of the material, or contractual arrangements for recycling);
  - (ii) The reason that the applicant has accumulated the material for one or more years without recycling 75 percent of the volume accumulated at the beginning of the year;
  - (iii) The quantity of material already accumulated and the quantity expected to be generated and accumulated before the material is recycled.
  - (iv) The extent to which the material is handled to minimize loss;

(v) Other relevant factors.

2. The Commissioner may grant requests for a variance from classifying as a waste those materials that are reclaimed and then reused as feedstock within the original primary production process in which the materials were generated if the reclamation operation is an essential part of the production process. The determination will be based on the following criteria:

- (i) How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials;
- (ii) The prevalence of the practice on an industry-wide basis;
- (iii) The extent to which the material is handled before reclamation to minimize loss;
- (iv) The time periods between generating the material and its reclamation, and between reclamation and return to the original primary production process;
- (v) The location of the reclamation operation in relation to the production process;
- (vi) Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form;
- (vii) Whether the person who generates the material also reclaims it;
- (viii) Other relevant factors.

→ (3)  
Lead Process

The Commissioner may grant requests for a variance from classifying as a waste those materials that have been reclaimed but must be reclaimed further before recovery is completed if, after initial reclamation, the resulting material is commodity-like (even though it is not yet a commercial product, and has to be reclaimed further). This determination will be based on the following factors:

- (i) ✓ The degree of processing the material has undergone and the degree of further processing that is required;
- (ii) ✓ The value of the material after it has been reclaimed;
- (iii) ✓ The degree to which the reclaimed material is like an analogous raw material.

- (iv) ✓ The extent to which an end market for the reclaimed material is guaranteed;
  - (v) ✓ The extent to which the reclaimed material is handled to minimize loss;
  - (vi) ✓ Other relevant factors.
- (c) Procedures - The Commissioner will use the following procedures in evaluating applications for variances from classification as a waste:
- 1. The applicant must apply to the Commissioner, and the application must address the relevant criteria contained in subparagraph (b) of this paragraph.
  - 2. The Commissioner will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will be provided by newspaper advertisement and radio broadcast in the locality where the recycler is located. The Commissioner will accept comment on the tentative decision for 30 days, and may also hold a public hearing upon request or at his discretion. The Commissioner will issue a final decision after receipt of comments and after the hearing (if any).
- (d) Temporary Variance for Hazardous Wastes Previously Excluded as being Beneficially Used or Reused or Legitimately Recycled or Reclaimed - Materials for which, as of the effective date of this paragraph, a tentative or final exclusion has been granted by the Commissioner pursuant to the petition process established by former Department Rule 1200-1-11-.01(3)(d) (entitled "Petitions to Exclude a Waste Which Is Beneficially Used or Reused or Legitimately Recycled or Reclaimed", but subsequently deleted) shall be deemed to be temporarily granted a variance pursuant to this paragraph until a final variance determination is made in accordance with this paragraph, provided that the person to which the exclusion was granted files a variance application pursuant to part (c) 1 of this paragraph within 90 days after the effective date of this paragraph. *By May 1, 86*

JUL 13 1989

MEMORANDUM

SUBJECT: U.S. Pipe & Foundry Penalty Calculations  
3008(a) Compliance Order; Docket 89-29-R

FROM: Javier E. Garcia  
Environmental Engineer

TO: Facility File

THRU: Doyle T. Brittain, Chief  
WCS, West Unit

Allan E. Antley, Chief  
Waste Compliance Section

Enclosed are the "Penalty Calculation Worksheets" for the penalty to be assessed against U.S. Pipe & Foundry. The proposed penalty is \$190,448.

This penalty has been mitigated considering that Tennessee has excluded the fly ash from RCRA regulations. The fly ash has been determined to be

~~a D006/D008 waste and has been disposed of in a non-authorized landfill.~~

The calculated penalty, including \$100/day for "LOIS" violation would be \$515,014.

GARCIA Disk # 5 LEXITRON

GARCIA

7/12/89

BRITTAIN

7/12/89

ANTLEY  
7/12/89

DOCKET 042

JUN 07 1989

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health  
and Environment  
Customs House, 4th Floor  
Nashville, Tennessee 37219-5403

Re: Notification of Enforcement Action

Dear Mr. Tiesler:

Pursuant to our Memorandum of Agreement and Section 3008(a)(2) of the Resource Conservation and Recovery Act (RCRA), we are hereby notifying Tennessee Division of Solid Waste Management that the U.S. Environmental Protection Agency (USEPA) is going to take formal action against U.S. Pipe & Foundry and Wheland Foundry, both in Chattanooga, Tennessee. These enforcement actions will address disposal of their fly ash, which exceeded E.P. levels for lead and cadmium, in a non-RCRA landfill.

If you have any questions, please contact Doyle T. Brittain at (404) 347-7603.

Sincerely yours,

James H. Scarbrough, P.E.  
Chief, RCRA Branch  
Waste Management Division

Garcia:awg:telex disk #1:Doc. NEA:06/05/89

GARCIA BRITTAIN ANTLEY

*[Signature]*  
6/5/89

*[Signature]*  
6/5/89

*[Signature]*

*[Signature]*  
6/5/89

*DOCKET-036*

To: John Watson  
U. S. Pipe

- 
- ☒ FOR YOUR INFORMATION
  - ☒ DO NOT RETURN
  - ☐ COMMENT AND RETURN
  - ☐ PLEASE HANDLE
  - ☐ FOR YOUR APPROVAL
  - ☐ PLEASE REPLY WITH A COPY TO ME
  - ☐ PREPARE ANSWER FOR MY SIGNATURE
  - ☐ DISCUSS WITH ME
  - ☐ PLEASE RETURN

---

<small>FROM:</small> Lecil M. Colburn	<small>DATE:</small> 2/17/86
--	---------------------------------



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

DATE: January 24, 1986  
TO: All Hazardous Waste Generators  
FROM: Division of Solid Waste Management  
SUBJECT: Superfund Fee Resource Recovery Exclusions

ENVIRONMENTAL SERVICE

FEB 20 1986

In the past for hazardous waste which was recycled, reclaimed or reused to qualify for an exclusion from the Superfund Fee it was required that the generator have in effect a resource recovery exclusion. Due to regulation and policy changes this will no longer be required. When the next Superfund Fee Worksheet (1986-87) is mailed out a special form will be included. If your hazardous waste is recycled, reused or reclaimed all that will be necessary to qualify for the Superfund Fee Exclusion will be to fill out the special form and return it with the Superfund Fee Worksheet. The exclusion from the Superfund Fee will be handled entirely separate from any type of regulation exclusion or variance. An exclusion from the Superfund Fee will not be contingent on the generator having been granted an exclusion or variance from regulations.

If you have questions contact Glen Pugh at (615) 741-6287 or Tom Yates at (615) 741-3424.

TDY/aff 5-22



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

DATE: January 23, 1986

TO: Hazardous waste generators and others who now have tentative or final recovery exclusions

FROM: Division of Solid Waste Management

SUBJECT: Variance for recycled hazardous waste

EPA has over the past several months made many changes in their regulations governing hazardous waste. These EPA changes have necessitated amendments to Tennessee's hazardous waste regulations so that they will be at least equal to EPA's regulations. These amendments are due to become effective February 2, 1986.

Among the changes resulting from the amendments is the deletion of the resource recovery exclusion and the petition process pertaining to it. This means that after February 2, 1986 the resource recovery exclusion will no longer exist. The amendments do provide for a variance, when certain criteria are met, for some hazardous waste that is recycled. The amendments also provide a 90 day period from the effective date of the amendments for those who now have a resource recovery exclusion (either tentative or final) to apply for a variance without losing their exclusion. The current resource recovery exclusions will become invalid for those facilities that do not apply for a variance within the 90 day period. The 90 day period will expire the first of May 1986.

Copies of the entire regulations, as amended, are not yet available. Therefore, I have attached excerpts from the amendments which address the variance and the temporary variance for hazardous wastes previously granted a resource recovery exclusion.

You will notice in the variance amendment there are 3 basic criteria at least one of which must be met to qualify for the variance. The amendment also outlines what information to include under each of the 3 basic criteria when applying for the variance. There will be some situations where a waste that qualified for a resource recovery exclusion will not fit any of the 3 basic criteria given in the amendment. These wastes will become subject to regulation when the variance is denied if it is requested.

An exclusion from the Superfund fee has been one of the benefits of the resource recovery exclusion. The Superfund fee exclusion will now be handled separately from regulation exclusions or variances therefore, a variance will not be necessary to qualify for an exclusion from the Superfund fee.

An excerpt of regulations pertaining to variances and temporary variances from a draft of regulation amendments to take effect February 2, 1986.

Rule 1200-1-11-.01.

(4) Variances from Classification as a Waste

(a) General - In accordance with subparagraphs (b) and (c) of this paragraph, the Commissioner may determine on a case-by-case basis that the following recycled materials are not wastes:

1. Materials that are accumulated speculatively without sufficient amounts being recycled (as defined in Rule 1200-1-11-.02(1)(a)3(viii);
2. Materials that are reclaimed and then reused within the original primary production processes in which they were generated;
3. Materials that have been reclaimed but must be reclaimed further before the materials are completely recovered.

(b) Standards and Criteria

1. The Commissioner may grant requests for a variance from classifying as a waste those materials that are accumulated speculatively without sufficient amounts being recycled if the applicant demonstrates that sufficient amounts of the material will be recycled or transferred for recycling in the following year. If a variance is granted, it is valid only for the following year, but can be renewed, on an annual basis, by filling a new application. The Commissioner's decision will be based on the following standards and criteria:
  - (i) The manner in which the material is expected to be recycled, when the material is expected to be recycled, and whether this expected disposition is likely to occur (for example, because of past practice, market factors, the nature of the material, or contractual arrangements for recycling);
  - (ii) The reason that the applicant has accumulated the material for one or more years without recycling 75 percent of the volume accumulated at the beginning of the year;
  - (iii) The quantity of material already accumulated and the quantity expected to be generated and accumulated before the material is recycled.
  - (iv) The extent to which the material is handled to minimize loss;

- (v) Other relevant factors.
2. The Commissioner may grant requests for a variance from classifying as a waste those materials that are reclaimed and then reused as feedstock within the original primary production process in which the materials were generated if the reclamation operation is an essential part of the production process. The determination will be based on the following criteria:
- (i) How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials;
  - (ii) The prevalence of the practice on an industry-wide basis;
  - (iii) The extent to which the material is handled before reclamation to minimize loss;
  - (iv) The time periods between generating the material and its reclamation, and between reclamation and return to the original primary production process;
  - (v) The location of the reclamation operation in relation to the production process;
  - (vi) Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form;
  - (vii) Whether the person who generates the material also reclaims it;
  - (viii) Other relevant factors.
3. The Commissioner may grant requests for a variance from classifying as a waste those materials that have been reclaimed but must be reclaimed further before recovery is completed if, after initial reclamation, the resulting material is commodity-like (even though it is not yet a commercial product, and has to be reclaimed further). This determination will be based on the following factors:
- (i) The degree of processing the material has undergone and the degree of further processing that is required;
  - (ii) The value of the material after it has been reclaimed;
  - (iii) The degree to which the reclaimed material is like an analogous raw material.

- (iv) The extent to which an end market for the reclaimed material is guaranteed;
  - (v) The extent to which the reclaimed material is handled to minimize loss;
  - (vi) Other relevant factors.
- (c) Procedures - The Commissioner will use the following procedures in evaluating applications for variances from classification as a waste:
1. The applicant must apply to the Commissioner, and the application must address the relevant criteria contained in subparagraph (b) of this paragraph.
  2. The Commissioner will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will be provided by newspaper advertisement and radio broadcast in the locality where the recycler is located. The Commissioner will accept comment on the tentative decision for 30 days, and may also hold a public hearing upon request or at his discretion. The Commissioner will issue a final decision after receipt of comments and after the hearing (if any).
- (d) Temporary Variance for Hazardous Wastes Previously Excluded as being Beneficially Used or Reused or Legitimately Recycled or Reclaimed - Materials for which, as of the effective date of this paragraph, a tentative or final exclusion has been granted by the Commissioner pursuant to the petition process established by former Department Rule 1200-1-11-.01(3)(d) (entitled "Petitions to Exclude a Waste Which Is Beneficially Used or Reused or Legitimately Recycled or Reclaimed", but subsequently deleted) shall be deemed to be temporarily granted a variance pursuant to this paragraph until a final variance determination is made in accordance with this paragraph, provided that the person to which the exclusion was granted files a variance application pursuant to part (c) 1 of this paragraph within 90 days after the effective date of this paragraph.

Copies to: W.E. Fleck  
C.N. Coddling  
W.A. Berry  
J. Smallwood



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

August 23, 1985

ENVIRONMENTAL SERVICE  
SEP - 6 1985

Mr. John H. Watson  
United States Pipe and Foundry Company  
3300 First Avenue North  
Birmingham, Alabama 35202

*Re: Dross from lead melting pot*

Dear Mr. Watson:

I have evaluated your resource recovery exclusion petition for D008 hazardous waste generated at Chattanooga Valve and Fittings Plant. Based on the information submitted your petition is tentatively granted.

The exclusion applies to all regulations except as provided by Rule 1200-1-11-.02(1)(f) parts 2 and 4 of the Rules Governing Hazardous Waste Management in Tennessee. Rule 1200-1-11-.02(1)(f) part 2 requires that all excluded waste continue to meet notification requirements. Rule 1200-1-11-.02(1)(f) part 4 does not apply to unlisted waste such as D008. Superfund fee regulations provide that a waste which has an exclusion in effect can be excluded from the Superfund fee.

Please be aware Rule 1200-1-11-.01(3)(a) part 7 provides, "Any exclusion or other variance granted to an individual person or waste pursuant to this paragraph shall be rescinded if it is discovered or later determined that the exclusion or other variance has resulted or may result in a significant hazard to public health or the environment." and part 8 provides, "Any exclusion or other variance granted pursuant to this paragraph shall remain valid only so long as the stipulations under which it was granted are not violated. If the characteristics of the waste and/or the waste management situation change so as to render the waste subject to regulation under these Rules, the petitioner shall immediately begin managing the waste according to the appropriate requirements of these Rules and shall notify the Department according to Rule 1200-1-11-.03(2)(c).

The final decision for your petition cannot be made until the required public notice procedures have been completed.

If you have any questions contact me.

Sincerely,

Tom Yates  
Division of Solid Waste Management

TY/bec/SW-125-A

cc: Chattanooga Valve and Fittings Plant

MWPS002030



*Rec. prior to June 13, 85*

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

June 3, 1985

Mr. John H. Watson  
United States Pipe and Foundry Co.  
3300 First Avenue North  
Birmingham, AL 35202

Dear Mr. Watson:

Your petition to have your Chattanooga Valve and Fittings Plant's D008 hazardous waste partially excluded from regulation because it is beneficially used or legitimately recycled or reclaimed has been received. It is in the process of being evaluated. If the evaluation indicates more information is needed, it will be requested. If the information is adequate, a tentative decision to grant or deny your petition will be made. The appropriate correspondence will be sent to you after the preliminary evaluation has been completed.

Sincerely,

Tom Yates  
Division of Solid Waste Management

TY/bec

SW-96



## UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE

3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

May 23, 1985

Commissioner, Tennessee Department of Public Health  
c/o Division of Solid Waste Management  
Fourth Floor, Customs House  
701 Broadway  
Nashville, Tennessee 37219

Re: Chattanooga Valve and Fittings Plant  
TND-98-031-6301  
Resource Recovery Exclusion Petition

Gentlemen:

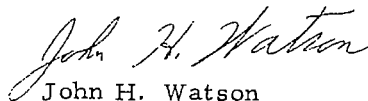
As a result of my conversation with Mr. Tom Yates and in accordance with your hazardous waste regulations, Rule 1200-1-11-.01(3)(d), we are hereby filing this "petition for exclusion" on the dross from our lead melting pot at the above reference facility. This waste is EP toxic for lead (hazardous waste code D008) and is generated in the process of melting lead ingots for use in leaded joints on fire hydrant nozzles. The dross is a scum or slag which accumulates on top of the molten lead and is skimmed off prior to pouring. The dross is accumulated in on-site drums and shipped to R. Lavin & Sons, Inc. in Chicago, Illinois. Since March 6, 1978, we have shipped 13,491# to the above firm for use in producing brass alloys and obtained a credit toward the purchase of brass alloys from same. Based upon the above, it is our opinion that "the waste is being beneficially used, or reused, or legitimately recycled or reclaimed, in a manner which will not pose a significant hazard to public health or the environment." (See attached letter from R. Lavin & Sons, Inc.) In addition to the above, we qualify as a "small quantity generator" (SQG) and, should this petition be granted, we should also qualify for exclusion from full regulation in accordance with Rule 1200-1-11-.02(1)(e)7.

Commissioner, Tennessee Department  
of Public Health

May 23, 1985

Should you have any questions on the above or need additional  
information, please let me know.

Yours truly,

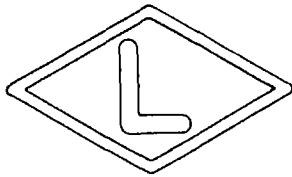


John H. Watson  
Principal Environmental Engineer

JHW/js

Attachment

cc: Mr. Steve Baxter with attachment



# north chicago refiners & smelters

division of R. Lavin & Sons, Inc.

2028 SOUTH SHERIDAN ROAD • NORTH CHICAGO, ILLINOIS 60064 • 312/689-4300 • Chicago 312/262-5200

MAY 21, 1985

MR. JOHN WATSON  
U.S. PIPE AND FOUNDRY CO.  
P.O. BOX 10406  
BIRMINGHAM, ALABAMA 35202

DEAR SIR:

THE LEAD DROSS WE OBTAIN FROM YOUR COMPANY IS CHARGED IN IT'S ORIGINAL FORM DIRECTLY INTO OUR FURNACES AS A RAW MATERIAL. ALL THE METALLIC COMPONENTS ARE RECOVERED AS PART OF OUR BRASS INGOT. THE NON-METALLIC COMPONENTS ARE DISSOLVED IN THE SLAG OR COLLECTED IN OUR BAGHOUSES. THE SLAG IS TREATED EITHER IN A CONCENTRATOR OR IN A CUPOLA OPERATION FOR TOTAL REMOVAL OF METAL. THE BY-PRODUCTS OF THE CONCENTRATOR OPERATION ARE HAZARDOUS WASTE. LAVIN DISPOSES OF THE WASTE IN ACCORDANCE WITH APPLICABLE FEDERAL AND STATE LAWS. THE BY-PRODUCTS OF THE CUPOLA OPERATION ARE NON-HAZARDOUS. THE BAGHOUSE COLLECTIONS ARE SOLD FOR METAL CONTENT.

WE WILL BE GLAD TO GIVE ANY FURTHER QUESTIONS YOU MAY HAVE OUR IMMEDIATE ATTENTION.

VERY TRULY YOURS,

  
SAM S. LEVIN  
PLANT MANAGER

MWPS002034

RECEIVED

APR 19 1985

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.

MARTIN H. DAVIS  
President

CHATTANOOGA, TENNESSEE 37405

615/265-4533

ACCOUNT NO. 1182-001 DATE APRIL 18, 1985  
RECEIVED FROM U. S. PIPE & FOUNDRY COMPANY, P. O. BOX 311, CHATTANOOGA,  
MR. JIM MOORE TENNESSEE 37401  
RECEIVED DATE 04/09/85  
MATERIAL METAL LEAD DROSS  
MARKED NO MARKS  
LABORATORY NO. 227,238

*Value of Lead Dross 5 lbs.  
from lead pit*

ACETIC ACID EXTRACTION per FEDERAL REGISTER  
VOL. 45, NO. 98, May 19, 1980

Arsenic mg/l	0.065 ✓
Barium mg/l	0.72 ✓
Cadmium mg/l	0.005 ✓
Chromium mg/l	0.37 ✓
Lead mg/l	(38) Std. is 5
Mercury mg/l	<0.001 ✓
Selenium mg/l	0.042 ✓
Silver mg/l	0.016 ✓

TECHNICAL LABORATORIES, INC.

*Lewis E. Cain for*

MARTIN H. DAVIS  
President

ibc

MWPS002035

**UNITED STATES PIPE AND FOUNDRY COMPANY**

GENERAL OFFICE  
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

May 23, 1985

Commissioner, Tennessee Department of Public Health  
c/o Division of Solid Waste Management  
Fourth Floor, Customs House  
701 Broadway  
Nashville, Tennessee 37219

Re: Chattanooga Valve and Fittings Plant  
TND-98-031-6301  
Resource Recovery Exclusion Petition

Gentlemen:

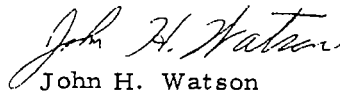
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Commissioner, Tennessee Department  
of Public Health

May 23, 1985

Should you have any questions on the above or need additional  
information, please let me know.

Yours truly,



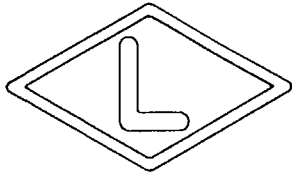
John H. Watson  
Principal Environmental Engineer

JHW/js

Attachment

cc: Mr. Steve Baxter with attachment

bc: Mr. W. E. Fleck with attachment  
Mr. C. N. Coddington     "  
Mr. W. A. Berry           "  
Mr. J. Smallwood         "



# north chicago refiners & smelters

division of R. Lavin & Sons, Inc.

2028 SOUTH SHERIDAN ROAD • NORTH CHICAGO, ILLINOIS 60064 • 312/689-4300 • Chicago 312/262-5200

MAY 21, 1985

ENVIRONMENTAL SERVICE

MAY 23 1985

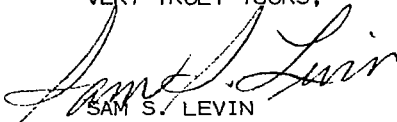
MR. JOHN WATSON  
U.S. PIPE AND FOUNDRY CO.  
P.O. BOX 10406  
BIRMINGHAM, ALABAMA 35202

DEAR SIR:

THE LEAD DROSS WE OBTAIN FROM YOUR COMPANY IS CHARGED IN IT'S ORIGINAL FORM DIRECTLY INTO OUR FURNACES AS A RAW MATERIAL. ALL THE METALLIC COMPONENTS ARE RECOVERED AS PART OF OUR BRASS INGOT. THE NON-METALLIC COMPONENTS ARE DISSOLVED IN THE SLAG OR COLLECTED IN OUR BAGHOUSES. THE SLAG IS TREATED EITHER IN A CONCENTRATOR OR IN A CUPOLA OPERATION FOR TOTAL REMOVAL OF METAL. THE BY-PRODUCTS OF THE CONCENTRATOR OPERATION ARE HAZARDOUS WASTE. LAVIN DISPOSES OF THE WASTE IN ACCORDANCE WITH APPLICABLE FEDERAL AND STATE LAWS. THE BY-PRODUCTS OF THE CUPOLA OPERATION ARE NON-HAZARDOUS. THE BAGHOUSE COLLECTIONS ARE SOLD FOR METAL CONTENT.

WE WILL BE GLAD TO GIVE ANY FURTHER QUESTIONS YOU MAY HAVE OUR IMMEDIATE ATTENTION.

VERY TRULY YOURS,

  
SAM S. LEVIN  
PLANT MANAGER

MWPS002038

RECEIVED

APR 19 1985 TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.

MARTIN H. DAVIS  
President

CHATTANOOGA, TENNESSEE 37405

615/265-4533

ACCOUNT NO. 1182-001 DATE APRIL 18, 1985  
RECEIVED FROM U. S. PIPE & FOUNDRY COMPANY, P. O. BOX 311, CHATTANOOGA,  
MR. JIM MOORE TENNESSEE 37401  
RECEIVED DATE 04/09/85  
MATERIAL METAL LEAD DROSS  
MARKED NO MARKS  
LABORATORY NO. 227,238

*Value Plant Brass Fdy.  
From from Lead pot*

ACETIC ACID EXTRACTION per FEDERAL REGISTER  
VOL. 45, NO. 98, May 19, 1980

Arsenic mg/l	0.065 ✓
Barium mg/l	0.72 ✓
Cadmium mg/l	0.005 ✓
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Lead mg/l	(38) Std. is 5
Mercury mg/l	<0.001 ✓
Selenium mg/l	0.042 ✓
Silver mg/l	0.016 ✓

TECHNICAL LABORATORIES, INC.

*Lewis E Cain for*

MARTIN H. DAVIS  
President

ibc

MWPS002039

A.T. Kearney, Inc.  
222 South Riverside Plaza  
Chicago, Illinois 60606  
312 648 0111  
Facsimile 312 648 1939-2302

Management  
Consultants

EPA/REGION IV  
ATLANTA, GA.

Mar 6 1 24 PM '89

"March 6, 1989"

GRANTS/LEGAL/STANDARD

**ATKEARNEY**

Ms. Rowena Sheffield  
Regional Project Officer  
U.S. Environmental Protection Agency  
345 Courtland Street, N.E.  
Atlanta, GA 30365

Reference: EPA Contract No. 68-01-7038; Work Assignment  
No. R04-05-36; U.S. Pipe and Foundry,  
Chattanooga, Tennessee - Soil Pipe Division  
(TND 074 893 777), Valve and Fitting Plant  
(TND 980 316 301); "Interim RFA Report"

Dear Ms. Sheffield:

Enclosed please find the interim RCRA Facility Assessment  
Report (RFA) for the two U.S. Pipe facilities in  
Chattanooga, Tennessee. The assessment resulted in the  
identification of "68" solid waste management units (SWMUs)  
and "17" areas of concern (AOCs).

The RFA was conducted under the Section 3007(a) authority  
of RCRA. Section 3007(a) gives EPA authority to access  
and inspect a facility for the purposes of determining  
whether a facility is managing hazardous or solid wastes.  
EPA requested that A.T. Kearney conduct an RFA of the  
facilities since there have been conflicting  
interpretations of the regulations regarding the  
classification and disposition of baghouse dust generated  
from foundry operations.

Conflicting interpretation of the regulations regarding  
the classification and disposition of the baghouse dust  
has resulted in disagreement between U.S. Pipe, EPA Region  
IV, and Tennessee Department of Health and Environment  
(TDHE). U.S. Pipe claims exclusion as a hazardous waste  
generator because the dust is generated by fossil fuel and  
is subject to an exemption provided by the Bevill  
Amendment. The EPA Region IV has maintained the position  
that the baghouse dust is toxic and should be managed as a  
hazardous waste. The TDHE has not promulgated rules  
requiring the dust be managed as a hazardous waste but is  
waiting for a hazardous determination from the state  
Attorney General.

U.S. Pipe and Foundry operates two gray iron foundries in  
Chattanooga, Tennessee. All solid noncombustible wastes  
are disposed on-site at the Landfill (SWMU F-27), located

DOCKET NO. HPF-004 a  
(46 is RFA report)

MWPS002040

Ms. Rowena Sheffield  
March 6, 1989  
Page two

on the east bank of the Tennessee River. Between 1972 and 1988, baghouse dust, containing 37 parts per million (ppm) lead was mixed with foundry sand and disposed of at this landfill.

Ground water in the area of the Landfill (SWMU F-27) has been monitored since 1985 and samples collected indicate concentrations as high as 0.14 ppm lead, 0.1 ppm formaldehyde and 0.009 ppm cadmium. A surface water discharge pipe directs runoff from east of the landfill to the Tennessee River. The pipe is positioned directly beneath the landfill. Samples collected of the water discharged from the Landfill Discharge Pipe (SWMU F-29) indicate concentrations of 0.06 ppm total lead, 2.1 ppm total iron, 0.01 formaldehyde and 0.001 ppm cadmium. Surface runoff from the active face of the Landfill (SWMU F-27) is collected in the Runoff Pond (SWMU F-28). Overflow from this unit discharges to the Tennessee River. To date, no sampling has been conducted of the discharged water or the sediments in the pond.

During the VSI, the thickness and integrity of the asphalt and concrete floors could not be determined due to a thick cover of foundry sand throughout the plant. There are 14 active baghouses controlling emissions from metal melting, pouring, sand systems, and metal cleaning operations. All baghouses are permitted by the Chattanooga-Hamilton County Air Pollution Control Bureau (C-HCAPCB). The C-HCAPCB also limits the amount of volatile organic compounds (VOCs) emitted from the coating operations to 100 tons per year. During the VSI, fugitive particulate emissions were noted. Sources of the particulates may be from inefficient baghouses, windblown particulate from the waste piles and/or operations from the adjacent foundries. Sources of the fugitive particulates should be investigated.

Fourteen waste piles, located throughout the facility, are utilized as staging areas for wastes prior to disposal in the Landfill (SWMU F-27). Most of the waste piles are located outdoors without adequate secondary containment. Even though the facility maintains that the waste is nonhazardous, there may be hazardous constituents in the waste. There appears to be a housekeeping problem which may result in the introduction of hazardous constituents into the Storm Sewer (SWMU F-17) or Sanitary Sewers of the Valve and Fittings Plant and Soil Pipe Division (SWMUs F-18 and S-27). Analysis and a determination regarding releases via this pathway should be investigated.

Ms. Rowena Sheffield  
March 6, 1989  
Page three

Eight sumps and 13 underground storage tanks were identified during the VSI. In addition, the Wastewater Pipes (SWMU S-21), Sanitary and Storm Sewer (SWMUs F-18 and F-17) and Soil Pipe Sanitary Sewer (SWMU S-27) were also identified. The integrity of these units should be determined in order to adequately assess their potential for release to soil, ground water and surface water.

Staining on the asphalt or soil was observed in the Large-Diameter Pipe Drying Areas (SWMU S-7), the Waste Oil Accumulation Area (SWMU S-6), the Compressor Area (AOC V-B), and the Coating Area (AOC F-H). Therefore, the integrity of the asphalt should be determined and if impaired, soil sampling should be conducted. Visible soil staining was noted in the vicinity of and at the Empty Drum Storage Area (SWMU F-15). Soil sampling has been suggested for this unit.

Due to the documented soil and ground-water contamination in the vicinity of the Landfill (SWMU F-27), historical surface water discharge violations and observed staining on soil and asphalt, it appears a RCRA Facility Investigation (RFI) is warranted at this facility. It is suggested that the sampling described in Chapter V be conducted during the RFI.

Please feel free to call me or Phêbe Davol, the Work Assignment Manager (who can be reached at 703/683-7932), if you have any questions.

Sincerely,



Ann L. Anderson  
Technical Director

Enclosure

cc: A. Thomas, EPA Region IV	P. Davol
J. Levin	J. Evans
D. Bean	K. Allison
G. Bennsky	A. Williams (w/o attachments)

0181x-AM

*Forie*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IV - ATLANTA, GEORGIA

DATE: FEB 15 1989

SUBJECT: RFA Status - U.S. Pipe & Foundry, Chattanooga, Tennessee  
Soil Pipe Division (TND 074 893 777)  
Valve & Fitting Plant (TND 980 316 301)

FROM: Wayne Garfinkel, Chief  
KY/TN Unit, WES *W. G.*

TO: Doyle Brittain, Chief  
West Unit, WCS

THRU: John Dickinson, Acting Chief  
Waste Engineering Section *JD 2/15/89*

In response to your inquiry last week, the RFA-Visual Site Inspection (VSI) took place at U.S. Pipe & Foundry on Monday and Tuesday, January 23 - 24, 1989. During the VSI, Alicia Thomas of WES and two (2) A.T. Kearney contractors toured the facility's Soil Pipe Division and Valve and Fitting Plant. The tour included a walk-over of the solid waste landfill shared by the two "divisions" and resulted in the identification of several other areas of concern.

Due to the delay of the VSI, A.T. Kearney requested an extension of the due date for submission of the Draft RFA Report. This request was formally approved and the deliverable is expected by March 10, 1989.

Should you have any further questions concerning this issue, contact Alicia Thomas at ext. 7603.

*DOCKET 032*

MWPS002043



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

WASTE MANAGEMENT DIVISION

List of Meeting Participants

Meeting: U.S. PIPE & FOUNDRY

Date: XII/19/88

Time: 1:30 PM

NAME	REPRESENTING	PHONE NUMBER
JAVIER E. GARCIA	U.S. EPA IV RCRA	404/347-7603
V. Anne Heard	U.S. EPA/ORC	(404) 347-2641
Bill Cross	AT-GS	615-637-3531
Jim Wright	" "	615-637-3531
Jim Singleton	US PIPE	615 752 3910
Gerald Reynolds	US PIPE - ENV. Counsel	813 871 4765
John H. Watson	US Pipe - Engineer	(205) 254-7434
Don C. WALLACE	US PIPE	(205) 254-7431
William T. BRITAIN	US EPA / WCS	(404) 347-7603
Allen R. Thomas	U.S. EPA / Permitting	(404) 347-7673
Deborah W. Espy	U.S. EPA / ORC	(404) 347-2641

DOCKET-030

MWPS002044



STATE OF TENNESSEE  
DEPARTMENT OF HEALTH AND ENVIRONMENT  
SOUTHEAST REGIONAL OFFICE  
2501 MILNE STREET  
CHATTANOOGA, TENNESSEE 37406-3399  
June 30, 1988

Mr. Jim Book, Engineer  
U. S. Pipe and Foundry Company  
Valve and Fittings Plant  
Post Office Box 311  
Chattanooga, Tennessee 37401

Re: Inspection under the Tennessee  
Hazardous Waste Management Act  
U. S. Pipe and Foundry Company  
TND-98-031-6301

Dear Mr. Book:

This letter confirms the observations and/or recommendations which were made during the hazardous waste generator inspection concerning your facility on June 29, 1988.

No violations of the regulations promulgated under the authority of the Tennessee Hazardous Waste Management Act were noted; however, a copy of the hazardous waste Inspection report is attached for your information and review.

If you desire any assistance or need clarification, please feel free to contact me at (615) 624-9921.

Cordially,

Guy M. Moose  
Environmental Specialist  
Division of Solid Waste Management

GMM:pph

Enclosure

cc: Division of Solid Waste Management, Nashville  
Hamilton County Health Department  
✓ Mr. John Watson, U.S. Pipe and Foundry Company  
Doyle Brittian, EPA, Region IV, Atlanta, GA

RECEIVED  
JUL 13 1988

JUL 13 1988

RECEIVED  
EPA/REGION IV

DOCKET-023

MWPS002045

## INSPECTION REPORT

1. Site/Operation Inspected:

U. S. Pipe and Foundry Company  
Valve and Fittings Plant  
TND-98-031-6301  
2701 Chestnut Street  
P.O. Box 311  
Chattanooga, Tennessee 37401

2. Primary Contact:

Jim Books, Engineer  
U. S. Pipe and Foundry Company  
Valve and Fittings Plant  
P. O. Box 311  
Chattanooga, Tennessee 37401  
(615) 752-3911

3. Date and Time of Inspection:

June 29, 1988  
1:00 p.m. - 2:30 p.m.

4. Report Prepared By:

Guy M. Moose, Environmental Specialist  
Tennessee Department of Health and Environment  
2501 Milne Street  
Chattanooga, Tennessee 37406  
(615) 624-9921

5. Names and Affiliations of Other Inspection Participants:

None

6. Purpose of Inspection:

To evaluate the facility's compliance with the applicable generator requirements of the Rules Governing Hazardous Waste Management In Tennessee.

An inspection was also conducted to evaluate the facility's compliance with the EPA land ban restrictions of November 8, 1986 and July 8, 1987. No violations of these requirements were observed.

7. Facility Description:

Nature of Business:

Manufacturer of custom iron pipe and fittings

Hazardous Waste Generated:

Emission control dust from cupola furnaces utilizing coke as fuel (D006) (D008)

Inspection Report  
U. S. Pipe and Foundry Company  
Page 2

Facility Status: Generator

At the time of the inspection, the baghouse dust was considered exempt from the Regulations (except for notification by authority of Rule 1200-1-11-.02(1)(d)3(ii)(I). The State's position concerning this exemption and how it pertained to U.S. Pipe and Foundry Company was outlined in Tom Tiesler's letter of September 11, 1984, to Mr. Jim Dockery.

8. Inspection Findings:

No violations were observed.

Signed L. M. Moore

Dated 7-1-88

JUL 29 1987

4WD-RCRA

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health and  
Environment  
Customs House  
701 Broadway  
Nashville, Tennessee 37219-5403

Re: Enforcement of Fly Ash from Foundries

Dear Mr. Tiesler:

In a letter dated July 8, 1987, you informed EPA of Tennessee's position in regard to the fly ash generated in foundries. It is our understanding from the letter that Tennessee is waiting for an Administrative Judge's final decision on the Alabama facilities before proceeding with any formal enforcement action. This issue was resolved with the facilities, reaching a final agreement in which the facilities agreed that they are subject to all applicable RCRA requirements and also to pay a civil penalty for the violations.

It is EPA's position that the fly ash from the foundries is a hazardous waste not covered by 40 CFR 261.4(b)(4), and is subject to all applicable RCRA requirements. We feel that the regulatory requirements are clear and Tennessee should take an appropriate enforcement action. As accorded in the MOA, we are giving Tennessee thirty (30) days notice that EPA will proceed with formal enforcement action against U. S. Pipe Valve and Fittings Plant and U. S. Pipe Soil Pipe Plant, both in Chattanooga, Tennessee, that generate a fly ash that demonstrates EP Toxicity, and are not handling their fly ash as a hazardous waste.

If you have any questions, please do not hesitate to contact Javier Garcia at (404) 347-7603.

Sincerely yours,

James H. Scarbrough, P.E.  
Chief, RCRA Branch  
Waste Management Division

5512

Brittain

Antley

7/27

JHP  
7/28/87

DOCKET 027

JUL 29 1987

4WD-RCRA

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health and  
Environment  
Customs House  
701 Broadway  
Nashville, Tennessee 37219-5403

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Sincerely yours,

James H. Scarbrough, P.E.  
Chief, RCRA Branch  
Waste Management Division

5512

Brittain

Antley

AAJ/27

JHS  
7/28/87

DOCKET 027



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

July 8, 1987

Mr. James E. Scarbrough, P.E., Chief  
Residuals Management Branch  
Waste Management Division  
U.S. Environmental Protection Agency  
Region IV  
345 Courtland Street  
Atlanta, GA 30365

Dear Mr. Scarbrough:

I am writing to you concerning an issue which EPA has raised with the State of Tennessee on numerous occasions. Specifically it concerns the hazardous waste regulatory exclusion of flyash from foundries in Tennessee and the difference in our State's interpretation of what we perceive to be an exclusion from the management requirement of the Regulations. We have had numerous discussions with EPA in the past and I have had a specific discussion with Mr. Tom Divine about these sites. After a formal request of the Board for an interpretation, the Board decided that the state would interpret the exclusion differently, until such time that EPA has some legal precedent as guidance on that interpretation.

I understand that EPA is now negotiating a settlement with U.S. Pipe & Foundry in Alabama, as a result of the action they took with that company concerning management of fly ash. Tennessee has been watching that matter closely to determine what the Administrative Law Judge would rule so that we would know how to proceed with our interpretation. It is my understanding that EPA may be considering a settlement with the company which would not give a clear determination as to whether this waste is excluded or not. It is also my understanding that the crux of the enforcement action was to make that determination so that states in Region IV and nationwide would have a precedent on which to interpret this exclusion.

We are pursuing action against two Tennessee foundries and feel that it is vital that EPA take a hard line to a clear resolution of this issue.

By way of this letter I am asking you to allow the court, the Administrative Law Judge, or whoever is the ultimate authority in this matter to make a ruling as to whether or not this waste is in fact excluded from management requirements.

*DOCKET-026*

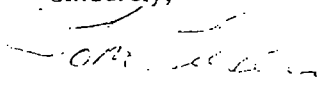
MWPS002050

Mr. James E. Scarbrough, P.E., Chief  
July 8, 1987  
Page 2

Meanwhile, Tennessee is pursuing enforcement on two Tennessee foundries which have failed to comply with Solid Waste Regulations in a timely manner relative to the disposal of foundry sands and fly ash disposal. Show cause meetings are scheduled for July 15 and July 17. Tennessee's enforcement decisions on solid waste violations will be made subsequent to these meetings.

Please realize that any settlement of the fly ash case without a clear decision interpreting the pertinent regulations would not offer guidance to Tennessee or other Region IV states.

Sincerely,

  
Tom Tiesler, Director  
Division of Solid Waste Management

TT/cw SWM D-4

cc: Doye Rowland, SWM Enforcement  
Steve Baxter, Chattanooga Field Office  
Mary Johnston, OGC-E



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

October 11, 1985

James Scarbrough, Chief  
Residuals Management Branch  
U.S. Environmental Protection Agency  
345 Courtland Street  
Atlanta, GA 30365

Re: Wheland Foundry and U.S. Pipe and Foundry, Hamilton County, Tennessee

Dear Mr. Scarbrough:

Pursuant to the telephoned request of Bill Gallagher of your staff, I am enclosing copies of the EP Toxicity data we have on file concerning the wastes from the subject two companies. Should you have questions regarding this data, these facilities, or our past actions concerning these facilities, you may wish to contact either Doye Rowland of this Division's Enforcement Section (615/741-3424) or Steve Baxter of our Chattanooga Field Office (615/624-9921).

To bring you up-to-date on our efforts to bring the fly ash generated by these two facilities under our hazardous waste regulations, please be advised that the Tennessee Solid Waste Disposal Control Board on October 2, 1985 rejected the proposed regulatory change I described in my September 11, 1985 letter to you requesting rulemaking assistance. As I described in that earlier letter, we believed and continue to believe that some such regulatory change is necessary in order for the "fossil fuel combustion waste exclusion" not to apply to the fly ash from the subject two companies. Like us, the Board expressed the belief that your Agency's interpretation (as expressed in your December 28, 1984 letter to me and attachments) is not consistent with the exclusion as it is worded in the State and Federal regulations. While the legislative history behind RCRA may provide a basis for amending the Federal regulatory language to say what your interpretation says it says, it does not alter the existing regulatory wording.

Unless and until it has withstood challenge in court, we simply cannot agree with your Agency's opinion that the referenced exclusion does not apply to the combustion wastes generated by the subject companies. Consequently, while my staff and I are not particularly pleased by this exclusion of an obviously-hazardous waste, we will not be pursuing any enforcement or permitting actions against these companies to try to get them to manage these wastes as hazardous wastes. We will require, however, that the sites where these wastes are disposed of be permitted under our (nonhazardous) solid waste management law and regulations. We are

James Scarbrough, Chief  
Page Two  
October 11, 1985

confident that we can, through these permitting actions, provide adequate protection of human health and the environment from these wastes.

If your Agency does decide to pursue enforcement action against these two companies for hazardous waste program violations, please be advised that we expect all applicable provisions of our Memorandum of Agreement to be adhered to. I also ask that we be kept informed (formally or informally) of developments as they occur regarding your enforcement efforts against similar facilities in Alabama or elsewhere. ✓

Finally, I wish to thank and praise Bill Gallagher of your staff for attending and presenting your Agency's position at the October 2, 1985 Board meeting. He performed very ably and professionally in what was, for him as the EPA representative, a difficult situation. I also thank you for allowing him to assist us.

Sincerely,

Tom Tiesler, Director  
Division of Solid Waste Management

JTT/TDH/ah/DDI

Copy: Steve Baxter, SWM Chattanooga Field Office  
Dan Cooper, Alabama Dept. of Environmental Management  
James C. Wright, (representing) U.S. Pipe and Foundry Company  
Hugh J. Moore, Jr., (representing) Wheland Foundry  
Ernest C. Blankenship, Tennessee Manufacturers and Taxpayers  
Association  
Rafael B. Bustamante, Chairman, Tennessee Solid Waste Disposal  
Control Board

## OFFICE CORRESPONDENCE

SUBJECT: U.S. Pipe and Foundry Company's Proposed Non-Hazardous Solid Waste Disposal Site

FROM	TO	DATE

1. Final grades must be adequate with regard to slope inclination and cover material to minimize erosion, support vegetation, and to insure safety against failure due to slides.
2. Siltation must be controlled over the entire area.
3. Fill progression, cell dimensions, and cell slope must be specified.
4. Detention time of the runoff from the waste fill must be adequate.
5. A total of the materials used to complete the landfill must be estimated.
6. Salvaging operations must not create ponding, interfere with vegetation, or cause other problems.
7. Levels of the following contaminants must be monitored:
  - iron
  - lead
  - cadmium
  - phenols
8. Only foundry sand and cupola slag will be permitted for disposal in this facility.

[illegible]

cc: Division of Solid Waste Management, Nashville

DOCKET-D18

PH-2001  
SR 377

MWPS002054

**SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.  
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:  
Mr. Ronnie Bowers  
Tennessee Dept. of Conservation  
Customs House  
701 Broadway  
Nashville, Tennessee 37243

4. Article Number:  
P 133 535 308

Type of Service:  
☐ Registered ☐ Insured  
☒ Certified ☐ COD  
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED

5. Signature — Address:  
X

6. Signature — Agent:  
X *[Signature]*

7. Date of Delivery:  
7-8-92

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1988 \* U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

**SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.  
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:  
Mr. John Dickinson  
U. S. EPA, Region IV  
345 Courtland Street, N.E.  
Atlanta, GA 30365

4. Article Number:  
P 133 535 307

Type of Service:  
☐ Registered ☐ Insured  
☒ Certified ☐ COD  
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED

5. Signature — Address:  
X

6. Signature — Agent:  
X *[Signature]*

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1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:  
Mr. Chris Lagan  
Tennessee Dept. of Conservation  
Customs House  
701 Broadway  
Nashville, TN 37243

4. Article Number:  
P 133 535 309

Type of Service:  
☐ Registered ☐ Insured  
☒ Certified ☐ COD  
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED

5. Signature — Address:  
X

6. Signature — Agent:  
X *[Signature]*

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7-6-92

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PS Form 3811, Mar. 1988 \* U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

UNITED STATES POSTAL SERVICE  
OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.



PENALTY FOR PRIVATE  
USE, \$300

RETURN

TO

Print Sender's name, address, and ZIP Code in the space below.

J. H. Watson  
United States Pipe & Foundry Co.  
P. O. Box 10406  
Birmingham, AL 35202

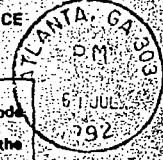


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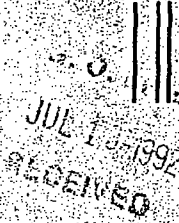


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OFFICIAL BUSINESS

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P. O. Box 10406  
Birmingham, AL 35202





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

SEP 18 1992

*Rec. 9-23-92*

4WD-RCRA

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Environment  
and Conservation  
701 Broadway  
Customs House, 4th Floor  
Nashville, Tennessee 37243-1535

Re: U.S. Pipe & Foundry  
EPA ID Number TND 074 873 777

Dear Mr. Tiesler:

This letter is to clarify a previous letter EPA sent to you on April 6, 1992, in regard to the closure activity report submitted by U.S. Pipe & Foundry in response to a Consent Agreement and Final Order ("CAFO") entered into between U.S. Pipe and EPA on December 12, 1990.

In the April 6, 1992, letter, EPA referred to the submittal by U.S. Pipe as a "closure plan." However, the CAFO (copy enclosed) does not specifically ask for a closure plan. Instead, the CAFO requires, among other things, the following:

- A groundwater monitoring plan for the landfill [see CAFO at page 4, paragraph B].
- A written report of the activities performed in the past for closure of the waste piles (former mixing bins) [CAFO at page 4, paragraph C-1].
- A plan describing the activities to be conducted to determine whether or not all waste and contaminated materials were removed during the activities described in paragraph C-1 [see CAFO at page 4, paragraph C-2], and implementation of such plan after EPA approval [CAFO at page 4, paragraph D].

In addition, the groundwater monitoring plan required by the CAFO shall include, at a minimum, the installation of two additional downgradient wells and a sampling and analysis plan. It is the responsibility of the approving agency to determine if additional requirements are needed.


EPA requested that the Division of Solid Waste Management be the lead agency for reviewing and approving submissions required by the CAFO. EPA is concerned that the requirements of the CAFO are met, and any additional requirements imposed by the Division must be resolved between U.S. Pipe and the Division.

J. C. ENO.  
SEP 23 1992  
RECEIVED

-2-

I apologize for any inconvenience you may have encountered regarding the CAFO requirements, and hope this clarification resolves your questions. If you have additional questions or comments, please contact Judy Marshall at (404) 347-7603.

Sincerely yours,

  
G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

Enclosure

cc: John H. Watson, U.S. Pipe & Foundry  
Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY/TN Unit

MWPS002058

I apologize for any inconvenience you may have encountered regarding the CAFO requirements, and hope this clarification resolves your questions. If you have additional questions or comments, please contact Judy Marshall at (404) 347-7603.

Sincerely yours,

*John E. Lichner (for)*  
G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

Enclosure

cc: John H. Watson, U.S. Pipe & Foundry  
Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY/TN Unit

Copies to (FYI)

Messrs. Wedell  
Fleck  
Walker  
Berry  
Pikciunas  
Wallace  
Gerre Reynolds  
Jim Wright (Knox)

Note:

9-24-92 This letter was discussed in a phone conversation with Ronnie Bowers (DSWM) morning of 9-23-92. Since he had not received his copy, I read our copy to him. I again asked if we could proceed with our sampling plan proposed in January 1991; however, he suggested that we hold off until he reviewed this letter with Tom Tiesler. Since Bowers was to be out of the office that afternoon and for the rest of the week, he was to schedule a meeting with Tiesler for Monday, September 28, to discuss the issues, following which he will advise us on how to proceed. Copy of this letter is being sent to Jim Wright in case the DSWM decides to impose any "additional requirements," since, at the time we signed the consent agreement, DSWM agreed with us that Cupola Baghouse Dust was exempted from hazardous waste regulations.

WASTE MANAGEMENT DIVISION  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION IV  
345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

FACSIMILE TRANSMISSION SHEET

(Please Number All Pages)

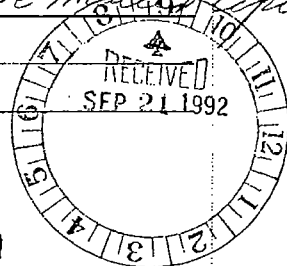
DATE: 9/21/92 # OF PAGES (Including Cover Sheet) 3  
TO: John Watson FAX NUMBER: (205) 254-7494  
ADDRESS: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
FROM: Judy Marshall FAX NUMBER: (404) 347- \_\_\_\_\_

IF THE FOLLOWING MESSAGE IS RECEIVED POORLY, PLEASE CALL Judy Marshall  
IN OUR OFFICE AT (404) 347- 7603

SPECIAL NOTES OR INSTRUCTIONS:

*\*Note: Discussed attach. letter with Ronnie Brown of OSWM on 9-23-92. Like us, he has not received the mailed copies of 9-18-92! He is setting up an appt. with Tom Tiesler for Mon. Sep. 28 to discuss the letter (when received) and our situation. He will then advise ~~for~~ us of how we should proceed. Of I don't hear from him on 9-28, call him back on 9-29!*

THE FAX, MAN,  
AND NOTHING BUT  
THE FAX.





## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## REGION IV

345 COURT AND STREET, N.E.  
ATLANTA, GEORGIA 30365

SEP 18 1992

4WD-RCRA

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Environment  
and Conservation  
701 Broadway  
Customs House, 4th Floor  
Nashville, Tennessee 37243-1535

Re: U.S. Pipe & Foundry  
EPA ID Number TND 074 873 777

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- A groundwater monitoring plan for the landfill (see CAFO at page 4, paragraph B).
- A written report of the activities performed in the past for closure of the waste piles (former mixing bins) (CAFO at page 4, paragraph C-1).
- A plan describing the activities to be conducted to determine whether or not all waste and contaminated materials were removed during the activities described in paragraph C-1 (see CAFO at page 4, paragraph C-2), and implementation of such plan after EPA approval (CAFO at page 4, paragraph D).

In addition, the groundwater monitoring plan required by the CAFO shall include, at a minimum, the installation of two additional downgradient wells and a sampling and analysis plan. It is the responsibility of the approving agency to determine if additional requirements are needed.

\*

EPA requested that the Division of Solid Waste Management be the lead agency for reviewing and approving submissions required by the CAFO. EPA is concerned that the requirements of the CAFO are met, and any additional requirements imposed by the Division must be resolved between U.S. Pipe and the Division.

Printed on Recycled Paper

*\*Note: This would appear to leave the door wide open for the DSWM to add additional requirements. However, at the time the DSWM was in agreement with us that CBD was "exempted" from Haz. Waste Regs!*

MWPS002061

09/21/92

10:40


U.S. E.P.A. - W.D.

003

-2-

I apologize for any inconvenience you may have encountered regarding the CAFO requirements, and hope this clarification resolves your questions. If you have additional questions or comments, please contact Judy Marshall at (404) 347-7603.

Sincerely yours,

  
G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

Enclosure

cc: John H. Watson, U.S. Pipe & Foundry  
Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY/TN Unit

MWPS002062



TENNESSEE DEPARTMENT OF CONSERVATION

Customs House  
701 Broadway  
Nashville, TN 37243

May 19, 1992

CERTIFIED MAIL P 995 332 533

Return Receipt Requested

*Rec. 5-26-92*

Mr. John Watson  
U.S. Pipe & Foundry  
P.O. Box 10406  
Birmingham, AL 35202

RE: NOTICE OF DEFICIENCY  
U.S. Pipe & Foundry Closure Plan Chattanooga, Tennessee  
TND 07 487 3777

Dear Mr. Watson:

The Tennessee Division of Solid Waste Management has completed the review of the Closure Plan for U.S. Pipe & Foundry in Chattanooga, Tennessee. Based on the Division's Review, U.S. Pipe & Foundry's Closure Plan has been determined to be incomplete and additional data and/or information will be required. The processing of the Closure Plan cannot be completed until the requirements of Rule 1200-1-11-.05(7) of the Tennessee Hazardous Waste Management Regulations are satisfied.

The deficiencies in U.S. Pipe & Foundry Closure Plan are identified in the enclosed comments for the Company's Review and Action. A Revised Closure Plan which corrects those deficiencies must be submitted no later than forty-five (45) days from receipt of this letter. Please submit four (4) copies of the Revised Closure Plan to my attention:

*by July 10, 92!*

Division of Solid Waste Management  
Customs House, 4th Floor  
701 Broadway  
Tennessee Department of Environment and Conservation  
Nashville, Tennessee 37243-1535

If you have any questions concerning the enclosed comments or requirements for a Closure Plan, please contact me at 741-7091 or 741-7092.

Sincerely,

*Ronnie Bowers*

Ronnie Bowers  
Environmental Specialist  
Corrective Action Unit  
Division of Solid Waste Management

RB/GAK/F1152139 SW-262

cc: G. Alan Farmer, Region IV, EPA  
HWPU File, DSWM, Nashville  
Guy Moose, Chattanooga Field Office

MWPS002063

NOTICE OF DEFICIENCY

U.S. PIPE & FOUNDRY

1. Rule 1200-1-11-.05(7)(b) requires that the facility be closed in a manner that:

*Mixing Bins!*

- a. Minimizes the need for further maintenance, and
- b. Controls, minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or waste decomposition products to the ground or surface waters or to the atmosphere, and
- c. Complies with the closure requirements of this Rule including, but not limited to, the requirements of subparagraphs (10)(e), (11)(g), (12)(h), (13)(g), (14)(e), (15)(e), (16)(e), and (17)(e).

The Closure Plan is deficient due to the following:

- a. The Closure Plan does not adequately demonstrate that the facility will be closed in a manner which satisfies the closure performance standard.
2. Rule 1200-1-11-.05(7)(c)2(i) requires that the Closure Plan include a description of how each hazardous waste management unit at the facility will be closed in accordance with subparagraph (b) of this paragraph.

The Closure Plan is deficient due to the following:

- a. The Closure Plan does not contain adequate information to describe how the unit will be closed in accordance with the closure performance standard.
  - b. The Closure Plan does not contain diagrams showing the units in relation to other buildings of the facility.
3. Rule 1200-1-11-.05(7)(c)2(iii) requires that the Closure Plan includes an estimate of the maximum inventory of hazardous wastes ever on-site over the active life of the facility and a detailed description of the methods to be used during partial and final closure, including, but not limited to methods for removing, transporting, treating, storing or disposing of all hazardous waste, identification of and the type(s) of off-site hazardous waste management unit(s) to be used, if applicable.

The Closure Plan is deficient due to the following:

- a. The Closure Plan does not estimate the maximum inventory of hazardous waste or describe in adequate detail the activities conducted during final closure.

*Was not a haz. waste!*

*CSP bin to be closed*

*CVF " to remain in oper. 2*

*2 Bins were cleaned out after Subgr  
by before operational in Jan. 89*

- \* b. The Closure Plan does not give a detailed description of the methods used for removing, transporting, treating, storing or disposing of the fly ash. N/A

4. Rule 1200-1-11-.05(7)(c)2(iv) requires that the Closure Plan include a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination necessary to satisfy the closure performance standard.

The Closure Plan is deficient due to the following:

- OK a. The Closure Plan does not adequately describe steps for removal or decontamination of hazardous waste residues and contaminated soils, equipment and materials.

- OK b. The Closure Plan does not adequately establish a criteria for determining the extent of decontamination necessary to satisfy the closure performance standard.

- OK c. The Closure Plan does not provide an adequate sampling plan.

- OK d. The Closure Plan does not adequately test the surrounding soils.

5. Rule 1200-1-11-.05(7)(c)2(v) requires that the Closure Plan include a detailed description of other activities necessary during the partial and final closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, ground-water monitoring, leachate collection, and run-on and run-off control.

The Closure Plan is deficient due to the following:

- a. The Closure Plan does not adequately describe all activities which are necessary to ensure that final closure will satisfy the closure performance standards.

- b. The Closure Plan does not provide information regarding ground-water monitoring. *Propose only if soil is contaminated to depth greater than 6"!*

6. Rule 1200-1-11-.05(7)(e) requires that during the partial and final closure periods, all contaminated equipment, structures, and soil must be properly disposed of or decontaminated unless specified otherwise in subparagraphs (11)(g), (12)(h), (13)(g), or (14)(e) of this Rule. By removing all hazardous wastes or hazardous waste constituents during partial and final closure, the owner or operator may become a generator of hazardous waste and must handle that hazardous waste in accordance with all applicable requirements of Rule 1200-1-11-.03.

\*Note! These mixing bins were cleaned out when the Silifix Sys. became operational in Jan. 1989. At that time the state still recognized the "fossil fuel" exemption. Waste was not hazardous!

\*Note: This doesn't appear to be applicable to our "mixing bins"! They don't qualify for the "4" listed! Not appl. unless they consider these "bins" as waste piles, however, CBD was certainly exempt at that time! Jan. 89

The Closure Plan is deficient due to the following:

- a. The Closure Plan does not address all of the requirements for determination, notification, storage, etc., for hazardous waste generation on-site. (Cupola B.H. dust still exempt in Tenn.?)
  - b. The Closure Plan does not adequately address the disposal of or decontamination of all contaminated equipment, structures and soil.  
*Great in sulfur sep since Tenn. says it isn't a TE system!*
7. Rule 1200-1-11-.05(7)(f) requires that within 60 days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit, and within 60 days of completion of final closure, the owner or operator must submit to the Commissioner by registered mail, at least four (4) copies of a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentationsupporting the independent registered professional engineer's certification must be furnished to the Commissioner upon request until he releases the owner or operator from the financial assurance requirements for closure under part (8)(d)3 of this Rule.

The Closure Plan is deficient due to the following:

- \*a. The Closure Plan does not address the specified requirements for certification of closure.
8. Rule 1200-1-11-.05(8)(c)1 requires that the owner or operator must have a detailed written estimate, in current dollars, of the cost of closing the facility in accordance with the requirements of subparagraphs (7)(b)-(f) of this Rule and applicable closure requirements of subparagraphs (10)(e), (11)(g), (12)(h), (13)(g), (14)(e), (15)(e), (16)(e), and (17)(e) of this Rule.
- a. The closure cost estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see part (7)(c)2 of this Rule) and/or the factors of subparts (ii) through (v) of this part.
  - b. The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility. A third party is a party who is neither a parent corporation nor a subsidiary of the owner or operator. (See definition of "parent corporation" at part (b)5 of this paragraph.) The owner or operator may use costs for on-site disposal if he can demonstrate that on-site disposal capacity will exist at all times over the life of the facility.
  - c. The closure cost estimate may not incorporate any salvage value that may be realized by the sale of hazardous wastes, facility structures or equipment, land, or other facility assets at the time of partial or final closures.

- d. The owner or operator may not incorporate a zero cost for hazardous waste that might have economic value.

The Closure Plan is deficient due to the following:

- (a) The Closure Plan does not address the closure cost estimate.  
*Include cost estimate!*

AF/F4071077

Notes: Also see p. 3 & 4 for notes!

5-27-92

1. I key have been sitting on our report since Jan. 1991, and give us 45 days to revise it!
2. You would think we were trying to close the landfill instead of two concrete pads:  
(a) CSP - 20' x 20' with two side walks.  
(b) CVF - 20' x 30' " three " " "
3. Develop Closure Cost Estimates!
4. The orig. Closure Plans for these mixing bins were submitted under a Consent Agreement with "EPA". At the time, Tenn. considered our B.H. dust to be exempt!

Send copies to: Hedell  
Fleck-Walker  
Pibcunas  
Berry-Smallwood  
Wallace

Chuck Piddly

## UNITED STATES PIPE AND FOUNDRY COMPANY

3300 FIRST AVENUE NORTH 35222

POST OFFICE BOX 10406

BIRMINGHAM, ALABAMA 35202

## FACSIMILE TRANSMISSION

DATE: June 16, 1992TIME: 1610 hrs. AM/PMFROM: John Watson

PHONE: \_\_\_\_\_

THIS FACSIMILE MESSAGE IS BEING TRANSMITTED TO THE FOLLOWING DESTINATIONS:

TO: <u>Jim Smallwood</u> ✓ BUSINESS PHONE NO.: _____ FAX NO.: <u>CVF Plant No.</u>	TO: <u>Chuck Priddy</u> ✓ BUSINESS PHONE NO.: <u>(615) 966-9761</u> FAX NO.: <u>(615) 966-4155</u>
TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____
TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____

MESSAGE: Note the attached letter from DSWM, both dated June 9, 1992, concerning the installation of and sampling of the two additional wells at the Chatt. landfill. Their reply to our Jan. 10, 91 submission! It would seem that Mr. Lagan is also unaware of requirements of our Consent Agreement with EPA. Following your review, let's discuss course of action.

TOTAL NUMBER OF PAGES INCLUDING THIS COVER SHEET: 5\*

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL THE SENDER AT THE NUMBER SHOWN ABOVE.

\* Chuck, do you want a copy of their 38 page "guidance document" attached to these letters?



TENNESSEE DEPARTMENT OF CONSERVATION

Customs House  
701 Broadway  
Nashville, TN 37243

June 9, 1992

Mr. John Watson  
U.S. Pipe & Foundry  
P. O. Box 10406  
Birmingham, AL 35202

G. C. ENG.  
JUN 15 1992  
RECEIVED

RE: Notice of Technical Deficiency  
U.S. Pipe & Foundry, Chattanooga, Tennessee  
Groundwater Sampling and Analysis Plan  
TND 074 873 777

Dear Mr. Watson:

A review of the Groundwater Monitoring Plan for U.S. Pipe & Foundry, Chattanooga, Tennessee, has been completed by the Division of Solid Waste Management. Please be advised that the groundwater monitoring plan is deficient as submitted. The groundwater monitoring plan contains two plans that should be submitted separately, as the Groundwater Monitoring Well Installation Plan and the Groundwater Sampling and Analysis Plan. The attached comments address some specific deficiencies in the groundwater sampling and analysis plan.

Please follow the enclosed guidance document when preparing groundwater sampling and analysis plans. The groundwater sampling and analysis plan must be resubmitted to the Division by July 30, 1992.

If there are any questions concerning this letter, please do not hesitate to contact me at (615) 741-3424.

Sincerely,

Chris Lagan  
Division of Solid Waste Management

CL/F5182160

Attachments

cc; Mr. G. Alan Farmer, Chief, RCRA Waste Management Division  
Mr. Bill Krispin, DSWM Nashville  
Mr. Guy Moose, DSWM, Chattanooga Field Office

MWPS002069

Comments on  
U.S. Pipe & Foundry  
Chattanooga, Tennessee  
Groundwater Monitoring Plan  
Deficiencies in Groundwater Sampling and Analysis Plan

1. Plan should have detailed procedures for sampling and analytical methods.
2. Plan should provide for procedures that insure that cross-contamination of wells does not occur.
3. Plan should provide for sampling order of wells.
4. Plan should provide for accurate measurement of water level in wells.
5. Plan does not provide for the determination of purged water volume.
6. Plan does not provide for purging background well first.
7. Plan does not provide for QA/QC in field measurement procedures.
8. Plan does not address facility's actual methods of sampling and analysis.
9. Plan does not address the actual facility monitoring system.
10. Plan does not provide an order of constituent sampling.
11. Plan does not provide information on method of transportation and handling samples.
12. Plan does not provide for chain of custody control.

CPL/F5192160



TENNESSEE DEPARTMENT OF CONSERVATION

Customs House  
701 Broadway  
Nashville, TN 37243

June 9, 1992

Mr. John Watson  
U.S. Pipe & Foundry  
P.O. Box 10406  
Birmingham, AL 35202

RE: Notice of Deficiency  
U.S. Pipe & Foundry, Chattanooga, Tennessee  
Groundwater Monitoring Well Installation Plan  
TND 07 873 777

Dear Mr. Watson:

A review of the Groundwater Monitoring Plan for U.S. Pipe & Foundry, Chattanooga, Tennessee, has been completed by the Division of Solid Waste Management. Please be advised that the groundwater monitoring plan is deficient as submitted. The groundwater monitoring plan contains two plans that should be submitted separately, as the Groundwater Monitoring Well Installation Plan and the Sampling and Analysis Plan. The attached comments address some specific deficiencies in the Groundwater Monitoring Well Installation Plan.

The Groundwater Monitoring Plan must be resubmitted to the Division by July 30, 1992.

If there are any questions concerning this letter, please do not hesitate to contact me at (615) 741-3424.

Sincerely,

Chris Lagan  
Division of Solid Waste Management

CL/F1012161

Attachment

cc: Mr. G. Alan Farmer, Chief, RCRA Waste Management Division  
Mr. Bill Krispin, DSWM, Nashville  
Mr. Guy Moose, DSWM, Chattanooga Field Office

G. O. ENG.

JUN 15 1992

RECEIVED

MWPS002071

Comments on  
U.S. Pipe & Foundry  
Chattanooga, Tennessee  
Groundwater Monitoring Plan  
Deficiencies in Groundwater Monitoring Well Installation Plan

1. Plan should include a map that shows the location of proposed monitoring wells. Scale 1" = 200'
2. Explanation behind the location of the monitoring wells.
3. Drawings showing well construction.
4. Construction method for monitoring wells, and reason(s) why this particular construction method was used.

CL/F1022161

DIVISION OF SOLID WASTE MANAGEMENT

GUIDANCE FOR PREPARING  
GROUNDWATER QUALITY ASSESSMENT PLANS  
AND  
GROUNDWATER SAMPLING AND ANALYSIS PLANS

by

Charles Burroughs  
Geologist  
Hazardous Waste Permitting Unit

## Introduction

### Using the Model Assessment Plan

The following Groundwater Quality Assessment Plan and Sampling and Analysis Plan guidance can be used to design an Assessment Plan or, by using Section II only, a Sampling and Analysis Plan. The guidance is divided into four parts which make up the four components of 1200-1-11-.05(6)(d)4(iii). The guidance details the documentation that should be submitted for review by the regulator. Section II, which is the sampling and analysis plan guidance gives examples of the detail that should be a part of the Sampling and Analysis Plan. The facility Sampling and Analysis Plan is a site specific document; therefore, only the portions of the Sampling and Analysis Plan guidance document that are specific to your facility should be included in your Sampling and Analysis Plan. Besides including the four parts which make up the four components of 1200-1-11-.05(6)(d)4(iii) your plan must address 1200-1-11-.05(6)(d)4(iv), (see page 2). If the facility is meeting the requirements of first determination, (false positive), the facility will be required to submit only the portion of the Assessment in Phase I of the Assessment that only pertains to the false positive determination. If the facility fails to prove that a false positive exists the facility would then be required to submit the additional information required in Assessment.

The guidance also includes the Groundwater Quality Assessment Plan and the Sampling and Analysis Plan checklist. Upon completion of the Assessment plan the checklist should be used to determine the completeness of the document prior to its submittal to the regulator for review.

## PART ONE

### Format And Guidance For Preparation Of An Interim Status Ground-Water Quality Assessment Plan

The following guidance addresses each component that should be a part of a groundwater quality assessment plan. The specific regulatory requirements that must be met are found at Tennessee Rule 1200-1-11-.05(6)(d)4(iii) and (IV), which reads as follows:

- (iii) The plan to be submitted under subpart (a)4(i) of this paragraph or subpart (ii) of this part must specify:
  - (I) The number, location, and depth of wells;
  - (II) Sampling and analytical methods for those hazardous wastes or hazardous waste constituents in the facility;
  - (III) Evaluation procedures, including any use of previously gathered groundwater quality information; and
  - (IV) A schedule of implementation.
- (iv) The owner or operator must implement the groundwater quality assessment plan which satisfies the requirements of subpart (iii) of this part, and, at a minimum, determine:
  - (I) The rate and extent of migration of the hazardous waste or hazardous waste constituents in the groundwater; and
  - (II) The concentrations of the hazardous waste or hazardous waste constituents in the groundwater.

An acceptable plan will describe in detail what will be done to meet these regulatory requirements. Sections I through IV provide further guidance on the main elements of the plan.

## PART TWO

### Ground-Water Quality Assessment Plan

The following are the components that should be a part of any groundwater assessment plan:

I. The Number, Location, and Depth of Wells.

Your plan should contain a map that shows the location of each proposed well or piezometer and the rationale behind the placement of these wells in addressing 1200-1-11-.05(6)(d)4(iv)(I). The map should have a scale of 1" = 200'. The plan should also include as an Appendix drawings showing the well construction, the method to be used in construction of the wells, decontamination of the rig and equipment used in drilling, collection and disposal of cleaning and rinse water, disposal of contaminated cuttings and disposal of contaminated drilling water. \*Your plan should describe how your well placement addresses the width, extent, and depth of the contamination plume as required by Rule 1200-1-11-.05(6)(d)4(IV)(I).

II. Sampling and Analytical Methods for those Hazardous Waste Or Hazardous Waste Constituents in the groundwater at the facility.

Your sampling and analysis plan should be used to satisfy the requirement of II.

The following is a model sampling and analysis plan which contains examples of what each section might consist of. This model plan can be used as a guide to develop a site specific S and A plan for any given facility. Each facilities S and A plan will be evaluated on its individual requirement for sampling and analysis. Parts of this plan will not be applicable for every facility.

## II

### SAMPLING AND ANALYSIS PLAN

\*Include as an Appendix a map of the site showing the location of all monitoring wells.

The surface elevation of the groundwater in each well shall be determined prior to each sampling. The following procedure shall be used to determine these elevations (any variations on this procedure will be reported to the Division of Solid Waste Management in detail):

#### 1. GROUND-WATER LEVEL AND WELL DEPTH MEASUREMENT PROCEDURES

##### Scope/Applications

This procedure outlines methods of obtaining water level measurements in completed wells. The use of a conducting probe and a weighted tape for well depth is described.

##### Summary of Method

The electronic water level indicator is an instrument with conducting probes. The probe is lowered by means of an electrical cord from the top of the well casing to the water level. When the probe intersects the water a circuit is completed activating either a light, alarm, or meter. The depth to water level is determined by reading the measured and marked increments on the lowering cord.

The weighted steel or fiberglass tape is marked in measured increments. It is lowered through the well, to the bottom of the well. The distance from the top of the well casing is then read to determine the depth of the well.

##### Comments

Groundwater with dilute ionic content may not conduct enough current between the electrodes of the water level indicator to activate the instrument.

##### Procedures

- A. Unlock and open well; note condition of well and don clean gloves.
- B. Record sampling station number, data, time, weather conditions, and any other well-specific pertinent information.
- C. Locate reference mark at top of well casing.

1. If reference mark is not present, make one on side of casing. \*Note: Mark will have to be surveyed to determine elevation.
2. Make a scratch or other permanent mark on the outside edge of the well casing.
3. If reference mark is not present, alert management.

Collect water level measurements with electronic water level indicator.

- D. Check battery on cleaned electronic water level indicator and on alarm.
- E. Lower electronic water level indicator probe into well making sure the cord on the probe does not scrape the sides of the well casing.
- F. When the alarm sounds and/or the red light illuminates, stop lowering the probe.
- G. Pull up on the probe until alarm no longer sounds.
- H. Lower probe again slowly. Stop at the instant the alarm sounds and/or the light comes on and stays on.
- I. Hold cord to side of casing where reference mark is etched.
- J. Mark cord with thumb where it touches reference mark.
- K. Use measuring device to determine distance from last marked increment to marked point on cord. The total depth is the distance from top of casing to the water level.
- L. Record measurement to 0.01 ft. as Depth to Water (DTW) in field log book.
- M. Repeat steps E-K, three times for consistency. Measurement should remain constant.
- N. Pull water level indicator from well.
- O. Close and lock well cap.
- P. Subtract distance from mark on casing to water level from the elevation of the mark on casing to get the elevation of the groundwater level.  
  

$$\text{Elevation of Well} - \text{Distance to Water Level} = \text{Elevation of Water Level}$$
- Q. After each measurement rinse the probe with deionized water to avoid possible cross contamination.

The depth of each of the monitoring wells shall be determined each time sampling is conducted. The following procedures shall be used to determine these measurements:

- A. Lower a weighted measurement probe until refusal;
- B. Measure and record the distance from the well bottom to the top of the well casing;
- C. All measurements should be taken to 0.01 foot;
- D. After each measurement rinse the probe with deionized water to avoid possible cross contamination.

The rinse water shall be collected and properly disposed: a description of disposal must be included. All procedures should be initiated with background well. A description of methods to prevent cross contamination, (i.e., use of rubber gloves, plastic sheets around well head), must be included.

When feasible, any departure from specified requirements will be justified and authorized prior to deviating from the requirements. Deviations will be sufficiently documented to allow repetition of the activity as actually performed.

## 2. DETECTION AND SAMPLING OF IMMISCIBLE LAYERS

### Scope/Applications

This procedure covers the methods used to detect and sample immiscible layers. If a facility has a release containing chemical constituents that are insoluble and that have special gravities either greater or less than that of water, then that facility's sampling and analysis plan must address immiscible layers.

### Summary of Method

The presence of organic vapors should be determined by the use of either a photoionization analyzer or a organic vapor analyzer. The presence of organic vapor may indicate a floating layer on the surface of the groundwater. An interface probe is used to determine the existence of a floating layer. A bailer is then used to sample the floating layer. If a sinker exists a double valve bailer is lowered to the bottom of the well in order to sample the layer.

### Comments

Sampling of the immiscible layer must take place prior to purging. If the floating layer is greater than 2 feet thick then a bottom valve bailer should be used. If the floating layer is less than 2 feet thick but less than 25 feet from the surface then a peristaltic pump should be used. If the floating layer is less than 2 feet thick but more than 25 feet from the surface then a open top closed bottom bailer should be

used. A double valve bailer should be used for immiscible layers that are sinkers. Detection and sampling of immiscible layers must be done prior to purging.

#### Procedures

- A. Locate well and record well number, site, date, and well condition in log book.
- B. Use plastic sheeting as necessary to prevent equipment from coming in contact with potentially contaminated surfaces. Don rubber gloves.
- C. Remove the locking and protective caps.
- D. Sample the air in the well head for organic vapors using either a photoionization analyzer or an organic vapor analyzer, and record measurements.
- E. Determine the static liquid level using a water level indicator and record the depth in the log book.
- F. Lower an interface probe into the well to determine the existence of any immiscible layer(s), light and/or dense.
- G. Remove clean bailer from protective covering, Attach cord, type of bailer used will be determined by immiscible layer being sampled. (See comments)
- H. Lower bailer slowly to the interval from which the sample is to be collected. If the sample interval is a floating layer only a few inches thick then the open top bailer should be lowered to the top of the immiscible layer and an additional half thickness of the immiscible layer.
- I. Raise bailer to surface, feeding cord into container, reel or onto clean plastic sheeting. Do not allow bailer cord to contact ground.
- J. Remove the cap from the sample bottle, and tilt the bottle slightly.
- K. Pour the sample slowly down the inside of the sample bottle. Avoid splashing of the sample. Assure that any suspended matter in the sample is transferred quantitatively to the sample bottle.
- L. Leave adequate air space in the bottle to allow for expansion, except for VOA flasks.
- M. Label the bottle carefully and clearly. Enter all information accurately, and check to be sure it is legible.
- N. Samples will be placed in containers defined according to the need, and then, when appropriate, packed with ice or ice packs in

coolers as soon as practical. Packing, labeling, and preparation for shipment procedures will follow procedures as specified in the Sampling and Analysis Plan.

- O. Complete field log book and chain-of-custody forms in accordance with the S and A Plan.
- P. Replace well cap and lock.

### 3. WELL PURGING PROCEDURE

#### Scope and Application

The procedure covers the purging of water from a well prior to sampling so that the sample is representative of the formation groundwater. The device used (bailer or pump) depends upon aquifer properties, individual well construction and data quality objectives.

#### Summary of Method

Well construction information is gathered prior to beginning purging. Water level is measured to calculate the volume of water present in the well. Purging is completed using a calculated number of volumes and/or field measurements to determine the end point.

#### Comments

Prior to sampling, each well shall be purged of all standing water. Each well shall either be pumped to dryness or at least three (3) well volumes of water removed.

Rate of purging should be regulated to minimize agitation of the ground water. If using a bailer to purge the well, lower and raise it slowly so as not to agitate the water in the well.

#### Procedures

- A. Obtain the following information about well.
  - o Well location
  - o Diameter(s) of well
  - o Depth of well
  - o Screen interval(s)
- B. Determine method to be used to purge well (i.e., pump or bailer).
- C. Calibrate instruments according to manufacturer's instrument calibration and maintenance manual, if applicable.

- D. Locate well and record well number, site, date and well condition in log book.
- E. Unlock and open well after placing plastic sheeting on ground. Don rubber gloves.
- F. Use known well depth information to determine the height of water column in well. Subtract distance to water level from depth of well to get the length of water column. Record all information in field log book.

Depth of well - distance to water level = length of water column

- G. Measure initial pH/specific conductance/temperature to evaluate water quality.
- H. Purge well of required volumes after calculating volume of water in well.
  - 1. The formula for calculating the volume in gallons of water in the well casing or sections of telescoping well casing is as follows:

$$(r^2h) 7.481 = \text{gallons; where } \pi = 3.142$$

$r$  = radius of the well pipe in feet

$h$  = linear feet of water in well

7.481 = gallons per cubic foot of water

- 2. Calculation of the volume of water in typical well casing may be done as follows:
  - a. 2" dia. well:  
0.1632 gal/ft x \_\_\_\_ (linear ft of water) = gal.
  - b. 4" dia. well:  
0.6528 gal/ft x \_\_\_\_ (linear ft of water) = gal.
  - c. 6" dia. well:  
1.4688 gal/ft x \_\_\_\_ (linear ft of water) = gal.
- J. The well purging end point will be when 3 volumes have been removed from the well.
  - 1. Purge one well volume, then begin measuring field parameters once during each well volume.
  - 2. Purge a total of at least 3 well volumes.
- K. Purge 3 well volumes or to dryness only if sufficient water is not present to yield required purge volumes.

- L. Record all purge times and rates of well evacuation in field log book.
- M. When all necessary procedures are complete lock well, clean area and dispose of refuse.

All purged water from downgradient wells will be collected and either returned to the plant site for treatment or held for analysis. After each well is sampled the pump and line will be purged with DI water and collected for treatment. Samples will be taken as soon as practical, i.e. sufficient recovery after purging.

#### 4. SAMPLE COLLECTION PROCEDURES

All monitoring wells shall be sampled in accordance with the methods of EPA/Sw-846, latest edition, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods". Samples shall be collected by the facility or their agents under the supervision of the Permittee's Environmental Supervisor.

##### 4.1 Sampling with a Bailer

###### Scope and Application

This procedure describes the use of a bailer (hollow, cylindrical tube) for collecting groundwater samples. Groundwater samples may be used to obtain physical, chemical, or radiological data.

###### Summary of Method

A bailer is lowered by cord into the groundwater where it fills. The bailer is withdrawn, and its contents are drained into the appropriate containers.

###### Comments

- A. Only bottom loading stainless steel or Teflon bailers will be used. PVC may be permitted depending on parameters.
- B. Bailers are economical and convenient enough that a separate bailer may be dedicated to each well to minimize cross contamination.
- C. Only new, clean cord will be used.
- D. A reel upon which the cord may be wound is helpful in lowering and raising the bailer. It also reduces chance of contamination.
- E. Bailers constructed with adhesive joints may not be used.

### Procedures

- A. Record sampling station number, sample I.D., date, time, weather conditions, and any other well specific, pertinent information (i.e., water level, presence of product in log book).
- B. Place plastic sheeting around well and work area.
- C. Unlock and remove well cap.
- D. Collect water level measurements by method outlined in Part A of the S and A Plan and record in log book. Remove clean bailer from protective covering attach cord allowing enough length for bailer to reach bottom of well.
- E. Lower bailer slowly to the interval from which the sample is to be collected.
- F. Allow bailer to fill with a minimum of surface disturbance in order to prevent sample water aeration.
- G. Raise bailer to surface, feeding cord into container, reel or onto clean plastic sheeting. Do not allow bailer cord to contact ground.
- H. Remove the cap from the sample bottle, and tilt the bottle slightly.
- I. Pour the sample slowly down the inside of the sample bottle. Avoid splashing of the sample. Assure that any suspended matter in the sample is transferred quantitatively to the sample bottle. Properly dispose of all excess water collected in bailer.
- J. Leave adequate air space in the bottle to allow for expansion, except for VOA flasks.
- K. Label the bottle carefully, and clearly. Enter all information accurately, and check to be sure it is legible.
- L. Samples will be placed in containers defined according to the needs, and then, when appropriate, packed with ice in coolers as soon as practical. Packaging, labeling, and preparation for shipment procedures will follow procedures as specified in the Sampling and Analysis Plan.
- M. Complete field log book and chain-of-custody forms in accordance with the S and A Plan.
- N. Replace bailer if dedicated, replace well cap and lock.

## 4.2 Sampling with a Gas Driven Piston Pump

### Scope and Application

This procedure discusses collection of groundwater samples using a single stage, positive displacement, double action, gas driven, reciprocating piston type pump (such as the Bennett pump). The water samples may be used to obtain physical, chemical, or radiological data.

### Summary of Method

A piston pump can be either dedicated to a well or cleaned/decontaminated before use. The pump is placed in the well prior to sample collection. A compressed air source drives a piston which is connected to another piston that forces water into the discharge line of the pump.

### Comments

The piston pump will not be used to collect samples for volatile organic analysis or total organic halogen analysis (TOX). If outgasing is of concern, this method may not be appropriate.

### Procedures

- A. Locate well and record well number, site, date, and well condition in field log book.
- B. Use plastic sheeting as necessary to prevent equipment from coming in contact with potentially contaminated surfaces.  
  
Don rubber gloves.
- C. Unlock and open well.
- D. Collect water level measurements by method outlined in Part A of the S and A Plan and record in log book.
- E. Lower pump in well to desired level, if pump is not dedicated.
- F. Connect air lines from regulated compressed air source to pump.
- G. Start air flow.
- H. Adjust flow rate with throttle knob found on pump regulator.
- I. When a piston pump is used for purging, measure the amount of water discharged with a container of known volume, if capacity of pumped well is unknown, and calculate purge time for the required purge volume. Refer to the S and A Plan for well purging.

- J. Obtain and record required measurements of the well water, (i.e., pH, specific conductance and temperature, and other parameters that may be specified in the Sampling and Analysis Plan).
- K. Remove the cap from the sample bottle, and tilt the bottle slightly.
- L. Pour the sample slowly down the inside of the sample bottle. Avoid splashing of the sample. Assure that any suspended matter in the sample is transferred quantitatively to the sample bottle.
- M. Leave adequate air space in the bottle to allow for expansion. The exception to this statement are VOA vials, which should be collected by bailer, and are filled to overflowing and capped.
- N. Label the bottle carefully and clearly. Enter all information accurately, and check to be sure it is legible.
- O. Samples will be placed in containers defined according to the needs, and then, when appropriate, packed with ice in coolers as soon as practical. Packaging, labeling, and preparation for shipment procedures will follow procedures as specified in the S and A Plan.
- P. Complete field log book and chain-of-custody forms in accordance with the S and A Plan.
- Q. If not dedicated, remove pump, close well cap and lock.

#### 4.3 Sampling with a Bladder Pump

##### Scope and Application

This procedure discusses collection of groundwater samples using the bladder pump. The water samples may be used to obtain physical, chemical, or radiological data.

##### Summary of Method

A bladder pump is either dedicated to a well, or cleaned before use. The pump is placed in the well prior to sample collection. A compressed air source forces air through a control box which regulates timed intervals of air discharges into, and air escapes from, the bladder pump, along with air intake pressure. The bladder expands and contracts with air intake and escape, and thereby forces water to the head of the well where it is collected.

##### Comments

Because there is little aeration or agitation of the water, the bladder pump can be used to collect samples for volatile organic analysis.

### Procedures

- A. Locate well and record well number, site, date, and well condition in log book.
- B. Use plastic sheeting as necessary to prevent equipment from coming in contact with potentially contaminated surfaces. Don rubber gloves.
- C. Unlock and open well.
- D. Collect water level measurements by method outlined in S and A Plan, and record in log book.
- E. Attach air lines, sample lines and lifting lines to pump. Lifting lines should bear the weight of the pump with air and sample lines attached to lifting lines approximately every 10 feet with appropriate inert devices.
- F. Lower pump in well to desired level, if pump is not dedicated.
- G. Connect air lines from regulated compressed gas source to control box.
- H. Connect battery, if required.
- I. Start air flow.
- J. Adjust flow rate with throttle knob found on control box.
- K. To control discharge and refill cycle rate of the bladder, use the discharge and refill control knobs located on control box.
- L. Equal length discharge and refill cycles are generally desirable, but individual well conditions may dictate otherwise.
- M. When a bladder pump is used for purging, measure the amount of water discharged with a container of known volume, and calculate purge time for the required purge volume.
- N. Obtain and record required measurements of the well water, (i.e., specific conductance, temperature and other measurement as required by the Sampling and Analysis Plan).
- O. Remove the cap from the sample bottle, and tilt the bottle slightly.
- P. Pour the sample slowly down the inside of the sample bottle. Avoid splashing the sample.
- Q. Leave adequate air space in the bottle to allow for expansion, except for VOA vials which are filled to overflowing and capped.

- R. Label the bottle carefully and clearly. Enter all information in the log book accurately, and check to be sure it is legible.
- S. Samples will be placed in containers defined according to the needs, and then, when appropriate, packed with ice in coolers as soon as practical. Packaging, labeling, and preparation for shipment procedures will follow procedures as specified in the S and A Plan.
- T. Complete field log book and chain-of-custody forms in accordance with The S and A Plan.
- U. If pump not dedicated, remove from well.
- V. Replace well cap and lock.

## 5. FIELD MEASUREMENT PROCEDURES

### 5.1 TEMPERATURE

#### Scope and Application

This procedure is applicable to ground, surface, and saline waters.

#### Summary of Method

Temperature measurements may be made with any calibrated high quality mercury-filled thermometer or thermometer with analog or digital read-out device.

#### Comments

For field operations using a glass thermometer, the thermometer will be transported in a protective case to prevent breakage. Thermometers or thermometer used with this procedure require calibration with a certified NBS thermometer.

#### Procedure

- A. Use only mercury-filled thermometer or thermistor that is in calibration.
- B. Inspect thermometer before each field trip to ensure that there are neither cracks in the glass, nor air spaces or bubbles in the mercury.
- C. Allow thermometer or thermistor enough time to equilibrate to outside temperature when removed from a field vehicle.
- D. Insert thermometer or thermistor in-situ when possible, or in a grab sample. Swirl the thermometer or thermistor in the sample,

and take the temperature reading when the mercury column or digital readout stabilizes; record temperature in field log book to the nearest 0.5 °C or 1.0 °C, depending on need.

#### Control of Deviations

When feasible, any departure from specified requirements will be justified and authorized prior to deviating from the requirements. Deviations shall be sufficiently documented to allow repetition of the activity as actually performed.

#### Calibration

Each temperature measurement device will be initially calibrated at three temperatures covering the range of the device against a National Bureau of Standards (NBS) certified thermometer, and then cross-checked against a calibrated NBS certified thermometer at least semiannually.

### 5.2 pH (Hydrogen Ion Concentration)

#### Scope and Application

This procedure is applicable to ground, surface, and saline waters.

#### Summary of Method

The pH of a sample is determined electrometrically using either a glass electrode in combination with a reference potential, or a combination electrode and a pH meter.

#### Comments

Coatings of oily material or particulate matter can impair electrode response. Remove these coatings by gentle wiping with a clean tissue followed by a distilled water rinse. Temperature effects on the electrometric measurement of pH are controlled by using instruments having temperature compensation or by calibrating the electrode meter system at the temperature of the sample.

Poorly buffered solutions with low specific conductance values (less than 200 umhos) may cause fluctuations in the pH readings. Equilibrate electrode by immersing in sample before taking pH measurements.

#### Procedure

- A. Prior to field activity check meter for mechanical and electrical failures, weak batteries, and cracked or fouled electrodes. Check pH recorders for recording and time scale accuracy.
- B. Following instructions provided with each type of meter, test the meter against standard buffer solutions before using. Thereafter, the meter can be checked periodically against two buffers that

bracket the expected value of the sample. Use a fresh aliquot of buffer solution for each measurement. Multi-range pH paper may be used to determine expected value.

- C. For pH meter without automatic temperature compensation, bring the sample and buffer to same temperature, if possible. If the sample temperature differs more than 2°C from the buffer solutions, adjust for temperature difference.
- D. Thoroughly rinse the electrode with distilled water and remove excess water between immersion in each buffer solution and sample.
- E. Immerse the electrode in-situ when possible. If it is necessary to measure pH on a portion of the sample swirl the electrode at a constant rate until the meter reading reaches equilibrium. The rate of stirring used should minimize the air transfer rate at the air-water interface of the sample.
- F. Note and record sample pH to the nearest 0.1 pH unit; repeat measurement on successive volumes of sample or in-situ until values differ by no less than 0.1 pH unit. Two or three volumes are usually sufficient.
- G. For samples of high ionic strength, condition electrodes after cleaning by dipping them into sample for one minute, immerse in fresh portion of the same sample, and read pH.
- H. For dilute, poorly buffered solutions, equilibrate electrodes by immersing in three or four successive portions of sample. Take a fresh sample to measure pH.
- I. Turn off meter at last reading.
- J. Rinse electrodes thoroughly with distilled water and store in appropriate storage solution as described in operating instructions for the specific meter or electrode.
- K. Record data in notebook, per S and A Plan, and complete Chain-of-Custody forms.

#### Control of Deviations

When feasible, any departure from specified requirements will be justified and authorized prior to deviating from the requirements. Deviations shall be sufficiently documented to allow repetition of the activity as actually performed.

### 5.3 CONDUCTIVITY

#### Scope and Application

This procedure is applicable to groundwater from monitoring wells.

#### Summary of Method

The conductivity of the sample is determined by measuring the conductance of the sample using a digital conductivity meter.

#### Comments

Temperature effects on the measurement of conductivity are controlled by using an instrument having temperature compensation or by calibrating the electrode meter system at the temperature of the sample.

#### Procedure

- A. Prior to field activity check meter for mechanical and electrical failures, weak batteries, and cracked or fouled electrode(s).
- B. Following instructions provided with the meter, test the meter for accuracy.
- C. Thoroughly rinse the electrode with distilled water and remove excess water between each sample.
- D. Immerse the probe into the sample and move around in sample several times before taking the reading. Record values to nearest 1.0 unit.
- E. Turn off meter at last reading.
- F. Rinse electrode thoroughly with distilled water and store according to operating instructions.
- G. Record data in field log book per S and A Plan and complete Chain-of-Custody form(s).
- H. Collect all contaminated water in a container for later disposal in the wastewater treatment system.

### 6. SAMPLING QA/QC PROGRAM

#### Field Blanks

- A. Trip Blank - Fill one of each type of sample bottle with Type II reagent grade water, transport to the site, handle like a sample, and return to the laboratory for analysis. One trip blank per sampling event is recommended.
- B. Equipment Blank - To ensure that the sampling device has been effectively cleaned (in the laboratory or field), fill the device with Type II reagent grade water or pump Type II reagent grade water through the device, transfer to sample bottle(s), and return

to the laboratory for analysis. A minimum of one equipment blank for each day that ground-water monitoring wells are sampled is recommended.

- C. Replicates - for every 10 samples or portion thereof, at least one replicate sample should be taken.
- D. Air Blank - If air contamination is expected fill appropriate sample bottle with Type II reagent grade water at site, return to the laboratory for analysis. Should be taken if possible, when site is downwind of suspected source. If may be advantageous to take more than one air sample per day. Direction of wind at time sample is taken should be entered in log book.

#### 7. CLEANING AND DECONTAMINATING SAMPLE CONTAINERS AND SAMPLING DEVICES

##### Scope and Application

This procedure establishes methodologies for cleaning and decontaminating sample containers and sampling devices.

##### Summary of Method

Sampling containers used by field sampling teams may be obtained precleaned from commercial supplier, supplied by the supporting analytical laboratory, or prepared by the field team. Sampling devices must be cleaned prior to being used in the field to prevent potential contamination of a sample. Sampling devices must be cleaned and decontaminated between samples to prevent cross-contamination and must be decontaminated at the close of the sampling event prior to being taken off-site.

An acceptable alternative to cleaning and decontaminating sampling devices is the use of items cleaned or sterilized by the manufacturer that are discarded after use. Care must be exercised to ensure such previously cleaned or sterilized items do not retain residues of chemical or radioactive sterilizing agents that might interfere with analytical techniques.

##### Comments

Include in this section a description of the lab method for the cleaning of sample bottles. Also, include the methods for decontamination of sampling equipment employed by the facility.

##### Definitions

- A. Sample containers include, but are not limited to, the following:

- Jars
- Vials
- Jugs

- B. The laboratory detergent must be a standard brand of phosphate-free laboratory detergent such as Alquinox, Liquinox, or the equivalent.
- C. The nitric acid solution (10 percent) is made from reagent-grade nitric acid and deionized or organic-free water.
- D. The standard cleaning solvent will be pesticide-grade isopropanol. The use of any solvent other than pesticide-grade isopropanol for equipment cleaning purposes must be justified and approved by the responsible project personnel and will be documented in log books. The laboratory must be informed as well.
- E. Tap water may be used from an approved municipal water treatment system. The use of an untreated potable water supply is not an acceptable substitute for tap water.
- F. Deionized water is defined as tap water that has been treated by passing through a standard deionizing resin column. The deionized water should contain no heavy metals or other inorganic compounds (i.e., at or above analytical detection limits) as defined by a standard Inductively Coupled Argon Plasma Spectrophotometer (IPC) scan.
- G. Organic-free water is defined as tap water that has been treated with activated carbon and deionizing units or water from a Milli-Q system (or equivalent).

#### General

During cleaning operations, the substitution of a higher grade water (i.e., deionized or organic-free water for tap water) is permitted and need not be noted as a variation.

The brushes used to clean equipment as outlined in the various sections of this procedure must not be of the wire-wrapped type.

The solvents, nitric acid solution, laboratory detergent, and rinse waters used to clean equipment must not be reused, except as specifically permitted.

#### Procedure

- A. Select appropriate cleaning procedure from the following.
- B. Segregation of Used Field Equipment

Field equipment or reusable sample containers needing cleaning must not be stored with clean equipment, sample tubing, or sample containers. Field equipment, reusable sample containers, disposable sample containers, and sample tubing that are not used may not be replaced in storage without being recleaned if these

materials are transported to a facility or study site where contamination or suspected contamination is present.

C. Storage of Cleaned Field Equipment and Sample Containers

Previously cleaned sample containers and field equipment are stored in a contaminant-free environment. Sample containers and field equipment are stored separately from all other equipment and supplies and from each other.

D. Transporting Used Sample Containers Off-Site

Sampling containers that contain a sample, regardless of the assumed or known level of hazard associated with that sample, must have all exterior surfaces decontaminated. For sample containers used in areas other than a controlled access area, a wipedown with disposable rags or toweling, or rinse with deionized water followed by drying with disposable rags or toweling, will suffice. Any visible dirt, water droplets, stains, or other extraneous materials must be removed. For containers used in controlled access areas, a more rigorous cleaning and/or radiation monitoring may be required.

Contamination Control

The solvent used to implement the cleaning procedures outlined in this method will be collected and disposed of by allowing to evaporate under a fume hood or be containerized and disposed of appropriately. Similarly, spent acids will be collected and disposed. These procedures apply whether cleaning procedures take place in the washroom or in the field.

7.1 Cleaning Procedures for Teflon or Glass Field Sampling Equipment Used for the Collection of Samples for Trace Organic Compounds and/or Metals Analyses<sup>3</sup>

- A. Equipment will be washed thoroughly with laboratory detergent and hot water using a brush to remove any particulate matter or surface film.
- B. The equipment will be rinsed thoroughly with hot tap water.
- C. Rinse equipment with at least a 10 percent nitric acid solution.<sup>4</sup>
- D. Rinse equipment thoroughly with tap water.
- E. Rinse equipment thoroughly with deionized water.
- F. Rinse equipment twice with solvent and allow to air dry for at least 24 hours.

- G. Wrap equipment with aluminum foil to prevent contamination during storage and/or transport to the field.

When this sampling equipment is used to collect samples that contain oil, grease or other hard to remove materials, it may be necessary to rinse the equipment several times with pesticide-grade acetone or hexane to remove the materials before proceeding with Step 1. In extreme cases, it may be necessary to steam clean the field equipment before proceeding with Step 1. If the field equipment cannot be cleaned utilizing these procedures, it should be discarded.

Small and awkward equipment such as vacuum bottle inserts and well bailers may be soaked in the nitric acid solution instead of being rinsed with it. Fresh nitric acid solution should be prepared for each cleaning session.

- H. Rinse the Teflon or glass sampling equipment thoroughly with tap water in the field as soon as possible after use.

#### 7.2 Cleaning Procedures for Stainless Steel or Metal Sampling Equipment Used for the Collection of Samples for Trace Organic Compounds and/or Metals Analyses<sup>5</sup>

- A. Wash equipment thoroughly with laboratory detergent and hot water using a brush to remove any particulate matter or surface film.
- B. Rinse equipment thoroughly with hot tap water.
- C. Rinse equipment thoroughly with deionized water.
- D. Rinse equipment twice with solvent and allow to air dry for at least 24 hours.
- E. Wrap equipment with aluminum foil to prevent contamination during storage and/or transport to the field.
- F. Rinse the stainless steel or metal sampling equipment thoroughly with tap water in the field as soon as possible after use.

When this sampling equipment is used to collect samples that contain oil, grease or other hard to remove materials, it may be necessary to rinse the equipment several times with pesticide grade acetone or hexane to remove the materials before proceeding with Step 1. In extreme cases, when equipment is painted, badly rusted, or coated with materials that are difficult to remove, it may be necessary to steam clean, wire brush, or sandblast equipment before proceeding with Step 1. Any stainless steel sampling equipment that cannot be cleaned using these procedures should be discarded.

### 7.3 Cleaning Procedures for Automatic Wastewater Sampling Equipment

#### A. General

Automatic samples will be cleaned as follows:

1. The exterior and accessible interior (excluding the waterproof timing mechanism) portions of automatic samplers will be washed with laboratory detergent and rinsed with tap water.
2. The face of the timing case mechanism will be cleaned with a clean damp cloth.
3. All tubing (sample intake and pump tubing) will be discarded after use.
4. New precleaned, silastic pump tubing will be installed.
5. When utilizing the samplers for collecting samples for metals and/or organic compounds analyses, the metal distributor tubes should not be used; only glass silastic pump tubing should be used for this purpose.

#### B. Automatic Sampler Headers

1. Disassemble header and using a bottle brush, wash with hot water and phosphate free laboratory detergent.
2. Rinse thoroughly with deionized water.
3. Reassemble header, let dry thoroughly and wrap with aluminum foil.

#### C. Reusable Glass Composite Samples Containers

1. Wash containers thoroughly with hot tap water and laboratory detergent, using a bottle brush to remove particulate matter and surface film.
2. Rinse containers thoroughly with hot tap water.
3. Rinse containers with at least 10 percent nitric acid.
4. Rinse containers thoroughly with tap water.
5. Rinse containers thoroughly with deionized water.
6. Rinse twice with solvent and allow to air dry for at least 24 hours.

7. Cap with aluminum foil or Teflon film.
8. After using, rinse with tap water in the field, seal with aluminum foil to keep the interior of the container wet, and return to the laboratory.

D. Plastic Reusable Composite Sample Containers

1. Proceed with the cleaning procedures as outlined in 8.3 C but omit Step 6.

E. Sequential Sample Bottles (Automatic Sampler Base for Sequential Mode)

1. Rinse with 10 percent nitric acid.
2. Rinse thoroughly with tap water.
3. Wash using laboratory detergent, followed by tap and deionized water rinse.
4. Replace bottles in covered, automatic sampler base; cover with aluminum foil for storage.
5. Rinse bottles in the field as soon as possible after using tap water.

F. Sequential Sample Bottles (Automatic Sampler Base for Sequential Mode) to be Used for Collecting Samples for Organic Compounds Analyses

1. Proceed as outlined in Steps 1-4 in Section 8.3 E.
2. Rinse twice with solvent and allow to air dry for at least 24 hours.
3. Replace in covered, automatic sampler base; cover with aluminum foil for storage and mark the base as follows: "Cleaned for organic analyses."

Plastic reusable sample containers used to collect samples from facilities that produce toxic or noxious compounds or are used to collect in-process waste stream samples at industrial facilities will be disposed of properly (preferably at the facility) at the conclusion of the sampling activities and will not be returned for cleaning. Any plastic composite sample containers that have a visible film, scale, or other discoloration remaining after this cleaning procedure will be discarded.

7.4. Cleaning Procedures for Sample Tubing

A. Silastic Rubber Pump Tubing Used in Automatic Samplers and Other Peristaltic Pumps

New cleaned tubing must be used for each automatic sampler set-up. The silastic rubber pump tubing need not be replaced in peristaltic pumps where the samples does not contact the tubing or where the pump is being used for purging purposes (i.e., not being used to collect samples).

The silastic tubing shall be cleaned as follows:

1. Flush tubing with hot tap water and phosphate-free laboratory detergent.
2. Rinse tubing thoroughly with hot tap water.
3. Rinse tubing with deionized water.
4. Install tubing in automatic sampler or peristaltic pump.
5. Cap both ends of tubing with aluminum foil.

B. Teflon Sample Tubing

Use only new Teflon tubing cleaned as follows for collection of samples for organic compounds analyses:

1. Teflon tubing may be precut in convenient lengths before cleaning to simplify handling.
2. Rinse outside of tubing with solvent.
3. Flush interior of tubing with solvent.
4. Dry overnight in the drying oven.
5. Wrap tubing and cap ends with aluminum foil to prevent contamination during storage.

C. Polyvinyl chloride (PVC) Sample Tubing

1. Use only new tubing.
2. The tubing will be flushed with sample immediately before use to remove any residues from the manufacturing or extruding process.
3. Polyvinyl chloride tubing will be used selectively where organic compounds are not of concern.
4. Tubing should be stored in original container and not removed from this container until needed.

D. Stainless Steel Tubing

1. Wash with laboratory detergent and hot water using a long, narrow, bottle brush.

2. Proceed with Steps B-F as outlined in 8.2.

E. Glass Tubing

Use new glass tubing, precleaned as follows:

1. Rinse thoroughly with solvent.
2. Air dry for at least 24 hours.
3. Wrap tubing with aluminum foil to prevent contamination during storage.
4. Discard tubing after use.

7.5. Miscellaneous Equipment Cleaning Procedures

A. Well Sounders or Tapes Used to Measure Groundwater Levels

1. Wash with laboratory detergent and tap water.
2. Rinse with tap water.
3. Rinse with deionized or organic-free water, as appropriate.
4. Equipment should be wrapped to prevent contamination during storage or transit.

B. Submersible Pumps and Hoses Used to Purge Groundwater Wells

Proceed as outlined in Section 8.5(A).

C. Miscellaneous Sampling and Flow Measuring Equipment

Miscellaneous flow measuring and sampling equipment shall be washed with laboratory detergent, rinsed with hot tap water, followed by a thorough deionized water rinse, and dried before being stored. This procedure is not used for any equipment utilized for the collection of samples for trace organic compounds or metals analyses.

D. Flow Meters, Field Analytical Equipment, and Other Field Instrumentation

The exterior of sealed, watertight equipment such as flow meters should be washed with a mild detergent (for example, liquid dishwashing detergent) and rinsed with tap water before storage. The interior of such equipment may be wiped with a damp cloth if necessary.

Other field instrumentation should be wiped with a clean, damp cloth; pH meter probes, conductivity probes, DO meter probes, etc. should be rinsed with deionized water before storage.

The desiccant in flow meters and other equipment should be checked and replaced if necessary each time the equipment is cleaned.

**E. Ice Chests and Shipping Containers**

All ice chests and reusable containers will be washed with laboratory detergent (interior and exterior) and rinsed with tap water and air dried before storage. Ice chest should be lined with plastic bag or samples should be placed in plastic bag. In the event that an ice chest becomes severely contaminated, in the opinion of the field investigator, with concentrated waste or other toxic material, it shall be cleaned as thoroughly as possible, rendered unusable, and disposed of properly.

**F. Organic-Free Water Storage Containers**

1. These containers will be used only for storing organic-free water.
2. New containers shall be prepared as outlined in Section 8.3.C, Steps 1-5, then rinsed thoroughly with organic-free or Milli-Q water, filled with Milli-Q water and capped.
3. Used containers shall be capped with aluminum foil immediately after being used in the field.
4. The exterior of the container will be washed with laboratory detergent and rinsed with deionized water if necessary.
5. The interior of the container will be rinsed twice with solvent.
6. The interior of the container will be thoroughly rinsed with organic-free for Milli-Q water. The container will be filled with organic-free or Milli-Q water and capped with aluminum foil for storage.

Other procedures for cleaning will be evaluated by the Division.

**8. PACKAGING ENVIRONMENTAL SAMPLES FOR TRANSPORTATION**

**Scope and Application**

This method describes the minimum procedures required to properly package containers of environmental samples for transport to analysis and/or archival. It outlines the general requirements to be followed for laboratory samples collected in the course of field investigations

and monitoring activities. It applies to environmental samples as defined in Title 40 or the Code of Federal Regulations, Part 261.4, Paragraph d and Title 10, Part 71, Subpart B. circumstances beyond this scope will be addressed in activity specific procedures.

#### Summary of Method

Individual sample containers will be checked against accompanying chain-of-custody and analytical request forms prior to signing for receipt form the sample collection. Site samples will be placed in strong exterior shipping packages and surrounded with compatible cushioning/absorbent material if necessary. The shipping package will be labelled and marked at per DOT regulations and carrier or receiver specific restriction.

The chain-of-custody must accompany the package. The package will be closed and sealed, as appropriate, and any required shipping papers prepared.

#### Comments

Contact receivers and carriers prior to packaging to ascertain any specific restrictions, such as weight limits, delivery and pick up schedules, receiving hours, or sample disposal terms.

This section should describe the handling of samples from the time they are taken to the time they are delivered to the lab or to the facility and ready for transport by a common carrier. The plan should include packaging, such as plastic bags used to seal sample bottles, samples placed in large trash bags, container carried in cooler packed with ice or cold packs, and the means of transportation.

The second part should describe how the sample is readied for transport by a common carrier, if applicable.

#### Procedures for sample container packaging

##### A. One site shipments

1. The sample container will be determined based on the analytical requirements as defined in the individual sampling and analysis plan.
2. The sample container will be cleaned in the field to remove sampled material from its exterior prior to packing for shipment.
3. If the samples are from a radiologically controlled area, the sample contained will be surveyed for exposure rate and surface contamination prior to packing.
4. Samples will be packed to insure physical integrity during the normal rigors of transportation. These requirements will include, but not be limited to:

- a) Strong, light outer containers as appropriate for sample;
  - b) The outer container will provide secondary containment for the sample provided the primary container is breached;
  - c) Absorbent material will be used, as required, to contain liquid samples and will be compatible with the sample;
  - d) Cushioning materials may be appropriate to reduce shock to samples and breakage of sample containers.
- 5. All samples will be packaged to insure the chemical integrity during the normal rigors of transportation.
  - 6. The outer container will be closed and secured as appropriate to maintain chain-of-custody.
  - 7. Prepare documentation of the proper execution of this procedure.

B. Markings and Labeling

Mark and label the shipping package to include the following as a minimum:

- 1. Name and address of receiver, including phone number
- 2. Name and address of shipper, including phone number
- 3. "Environmental Samples"
- 4. "Net weight \_\_\_\_\_ or "net volume \_\_\_\_\_"
- 5. "This side up"
- 6. "Fragile" if glass is enclosed
- 7. All appropriate hazard class labels applicable to the contents.
- 8. Assigned number of the particular package of multiple package shipment.

9. CHEMICAL ANALYSIS PROCEDURES

For most of the analytical parameters to be measured, there is usually more than one analytical method that may be applied. Selecting the

appropriate method involves assessing the characteristics of each samples, the intended use of the data obtained from the analysis, and the limitations imposed by the analytical facility.

The facility should prepare a table (see page 31, Table 1) for the parameters analyzed for. The methods shown in Table 1 are not necessarily the methods that apply to the parameters listed.

To select the most appropriate method for the analysis, the following factors should be considered:

- a) Physical state of sample
- b) Anticipated concentration of analytes
- c) Required detection limit
- d) Data quality objectives (DQO)
- e) Regulatory requirements
- f) Set up and equipment available at the analytical facility
- g) Cost of analysis

After all of the above have been taken into consideration, the analytical method can be selected.

TABLE 1

Parameter	Recommended Container <sup>b</sup>	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis	Analytical Method	Detectible Limit	Reference*
Arsenic	T,P	<u>Total Metals</u>	6 months	1,000 ml	7060		1
Barium		Field acidified to			7080		1
Cadmium		pH <2 with HNO <sub>3</sub>			7131		1
Chromium					7191		1
Lead		<u>Dissolved Metals</u>			6010		1
Mercury		1. Field filtration	6 months	1,000 ml	7421		1
		(0.45 micron)			7470		1
		2. Acidify to pH <2			6010	0.1 mg/l	1
		with HNO <sub>3</sub>			6010	0.0002 mg/l	1

1. "Test Method for Evaluating Solid Waste," Latest Edition, USEPA, SW-846, July 1982.

List the sampling parameters in the order that they are to be collected. Collection should be in the order of sensitivity of volatilization. The following list is arranged by sensitivity to volatilization.

TABLE 2

- o Volatile organics (VOA)
- o Purgeable organic carbon (POC)
- o Total organic halogens (TOX)
- o Total organic carbon (TOC)
- o Extractable organics
- o Total metals
- o Dissolved metals
- o Phenols
- o Cyanide
- o Sulfate and chloride
- o Turbidity
- o Nitrate and ammonia
- o Radionuclides

10. CHAIN-OF-CUSTODY CONTROL

Procedure

A. Samples Under Custody

Chain-of-custody requirements are necessary whenever a sample leaves the sampling team's custody. A sample is considered to be under a person's custody if any of the following conditions are met:

1. The sample is in the person's physical possession;
2. The sample is in line of sight of the person after he/she has taken possession;
3. The sample is secured by that person so any tampering can be detected;

4. A sample is secured by the person in possession, in an area which only authorized personnel can enter.

B. Sample labels or Tags

Sample labels will be affixed to all sample containers prior to or at the time of sampling. Sample labels will be waterproof paper or plastic with gummed backs or waterproof tags, as appropriate. Labels will be completed with black indelible ink and will include the following information:

1. Unique field study or sampling activity name and/or number;
2. Unique sample number;
3. Sample location or appropriate identification as identified in the sampling program;
4. Sampling date and time;
5. Sample preservation used;
6. Media sample or sample type;
7. Analyses required.
8. Comments and special precautions as needed.

Include copies of your sample labels and tags.

C. Sample Seals

Sample seals are used to detect tampering of samples, following sample collection prior to the time of analysis. The seal will be attached in such a way that it is necessary to break the seal in order to open the sample container. Here, "sample containers" may refer to either individual sample containers or a shipping container such as an ice chest. Seals will be affixed to the containers before they leave the custody of the sampling personnel.

Sample seals will be waterproof paper or plastic with gummed backs. All samples designated for shipment which leaves the sampler's custody will have a sample seal affixed which includes the following information:

1. Unique sample identification;
2. Name(s) of collector(s);
3. Date and time of sampling;
4. Sample location or identification.

Alternately, evidence tape with collector's initials, date and time may be used.

Include an example of your Sample Seal.

D. Field log book

A field log book entry will be made at the time the sample is taken; the entry will be completed at the time the sample is taken. The field log book entry will include, but not limited to, the following information:

1. Unique field study or sampling activity name and number and sample number;
2. Volume of sample taken;
3. Name(s) of collector(s) and identification of others present;
4. Name and address of field contact, as appropriate;
5. Date and time of sample collection;
6. Sample depth or interval;
7. Suspected sample composition, including concentrations, as appropriate;
8. Analytical parameter(s) to be measured;
9. Preservative;
10. Location of sampling point well number;
11. Designation of QC samples (e.g., blank, splits or duplicates);
12. Sampling methodology;
13. Observations during sampling (e.g., odors and colors);
14. References, such as maps or photographs;
15. Chain-of-Custody control number and sample request documentation;
16. Sample distribution and how transported;
17. Initials of responsible observer;
18. Field observations and measurements.

E. Chain-of-Custody Records

The chain-of-custody record will be completed by the sampling personnel at the time of the sampling event. The record(s) will be signed as relinquished or received each time the sample changes possession, from collection to final deposition. The chain-of-custody record will include the following information.

1. Unique sample number(s);
2. Unique field study or sampling activity name and/or number;
3. Date and time of sample collection;
4. Place and address of collection;
5. Name(s) of sample team member(s);
6. Signature(s) of the collector(s) or field sample custodian;
7. Laboratory destination, if known;
8. Waste type, if known;
9. Container type;
10. Condition of sample on receipt;
11. Possible sample hazards;
12. Chain-of-custody control number;
13. A corresponding sample request for analysis sheet number or other identification;
14. Signature and date blocks for personnel relinquishing or receiving sample custody;
15. Inclusive dates of possession.

Include a copy of the chain-of-custody form.

F. Sample Request for Analysis Sheet

A request for analysis sheet will be submitted to the lab for the collected sample. The request for analysis sheet or copy of the chain-of-custody will provide the following information:

1. Unique sample number(s);
2. Laboratory sample number (may be assigned by lab personnel);
3. Unique field study or sampling activity name and number;

4. Contact person and phone number to whom data is to be reported;
5. Date and time of sample collection;
6. Sample type;
7. Type(s) of analysis requested;
8. Signature(s) of person receiving the sample;
9. Date and time of sample receipt;
10. Sample Destination.

G. Laboratory Chain-of-Custody Sheet

The laboratory chain-of-custody sheet will be completed by the laboratory personnel receiving custody of the field samples. The laboratory chain-of-custody sheet may be a separate document or part of multicopy form used for both field and laboratory activity.

The laboratory personnel will verify that information on the appropriate form is complete and accurate. He/she will verify that the sample was received with all pertinent information and that the integrity of the sample(s) has been maintained. The laboratory chain-of-custody sheet will include the following information:

1. Unique field study of sampling activity name and/or number;
2. Unique sample number;
3. Unique laboratory long-in number;
4. Verification of the presence of all appropriate forms and their completion;
5. Inspection comments of the samples by the receiving sample custodian;
6. Time and date of receipt;
7. Signature(s) of receiving personnel;
8. Signature blocks for relinquishing and receiving sample possession within the laboratory or laboratories;
9. Date and time for relinquishing and receiving;
10. Sample allocation;

11. Final sample disposition.

Include a copy of the form.

III. Evaluation Procedures, including any use of previously gathered quality information.

This section should address the following:

1. Description and history of the facilities detection monitoring system, as well as any additional wells that may have been added to your system. Include as an Appendix A map of the facility groundwater monitoring system at the scale of 1" = 200'.
2. Narrative discussion of the hydrologic conditions at the facility; identification of potential contaminant pathways.
3. Include the analysis for the sampling and confirmation sampling that resulted in Assessment.
4. Description of Data Collection and Analysis procedures the facility plans to employ.
5. Description of the approach the facility will use to make the first determination (false positives rationale) in Appendix IX sampling to contain contamination.

The above requirements are addressed in detail in the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER-9950.1, September 1986.

IV. A Schedule of Implementation

A schedule of implementation should be included that addresses a significant number of milestones and the number of days for approval of each milestone. The schedule of implementation should be open ended in that upon receipt of each assessment report there will be a schedule of implementation for the next phase of Assessment.

Day Implementation Schedule Begins

30 Days	Notice to Division of drilling method
60 Days	Completion of upgradient well
80 Days	Completion of Phase I of Assessment
120 Days	Submittal of Phase II report and Schedule of Implementation for Phase II.

PART III  
ASSESSMENT

The Plan must address 1200-1-11-.05(6)(d)4(iv)

The facility must implement the groundwater quality assessment plan which satisfies the requirements of subpart (iii) of this part, and, at a minimum, determine:

- (I) The rate and extent of migration of the hazardous waste or hazardous waste constituents in the groundwater.

The facility must explain how the placement of its groundwater monitoring wells during each phase of this assessment meets the requirements of 1200-1-11-.05(6)(d)4(iv)(I).

- (II) The concentrations of the hazardous waste or hazardous waste constituents in the groundwater.

The facility must include as a part of their Phase I of assessment analysis for appendix IX constituents in a determined number of monitoring wells from the monitoring well system.

The following sources were used to propose the model Groundwater Quality Assessment Plan.

1. RCRA Ground-water monitoring Technical enforcement Guidance Document (TEGD), OSWER-9950.1 September 1986.
2. Sampling and Analysis Plan, Oak Ridge Y-12 Plant, Geraghty & Miller, Inc.
3. Sampling and Analysis Plan, Duromatic Corp., Alley, Young, & Baumgartner Consultants.

CB/F1030157



UNITED STATES PIPE AND FOUNDRY COMPANY  
3300 FIRST AVENUE NORTH 35222  
POST OFFICE BOX 10406  
BIRMINGHAM, ALABAMA 35202

FILE

May 1, 1992

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Conservation  
Customs House  
701 Broadway  
Nashville, TN 37243

Re: Chattanooga Soil Pipe Property  
TND 07-489-3777  
State's request for submission of a  
Part B Permit Application or Closure Plan

Dear Mr. Tiesler:

This letter is in response to your letter of April 20, 1992, concerning the above subject. Our Soil Pipe Plant ceased operations on May 7, 1990, and was permanently closed shortly thereafter. This facility was never operated as a treatment, storage, and disposal (TSD) facility for hazardous waste, and therefore, we neither had a TSD permit nor operated under interim status.

As you may recall, we signed a Consent Agreement with EPA to resolve the "hazardous waste issue" relative to our "fossil fuel exempted" cupola baghouse dust. This agreement was signed in December 1990 and required that we submit a Closure Plan for two Mixing Bins, one located at the subject facility and the other located at our Chattanooga Valve and Fittings Plant. These bins had been utilized by each plant for mixing their cupola baghouse dust with large volumes of other foundry wastes prior to disposal on the adjacent landfill. Our Mixing Bin Closure Plan was submitted to both EPA and your office on January 10, 1991.

In mid-February of this year, we contacted Mr. Ronnie Bowers of your staff to determine the status of EPA's and the Division's review of the Closure Plan, in an attempt to get it finalized so that we could proceed with any required remedial action. In mid-April, Mr. Bowers faxed us a copy of EPA's April 6, 1992 letter to you requesting that the Division of Solid Waste Management (DSWM) take the lead in overseeing the implementation of the finalized Closure Plan.

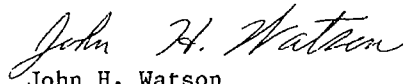
MWPS002112

Mr. Tom Tiesler  
Page 2  
May 1, 1992

We are ready and willing to work with the DSWM to get the "closures" behind us. Should you have any questions on the above, please let me know.

Yours truly,

UNITED STATES PIPE AND FOUNDRY COMPANY

  
John H. Watson  
Principal Environmental Engineer

JHW/js

cc: Mr. Guy Moose, DSWM - Chattanooga  
Mr. W. A. Berry  
Mr. John Pikciunas  
Mr. J. Smallwood

bc: Mr. D. R. Wedell  
Mr. W. E. Fleck  
Mr. J. R. Walker  
Mr. D. C. Wallace  
J. C. Wright, Esq.



TENNESSEE DEPARTMENT OF CONSERVATION  
Customs House  
701 Broadway  
Nashville, TN 37243

CERTIFIED MAIL #P 889 779 344  
RETURN RECEIPT REQUESTED

April 20, 1992 (Rec. 4-23-92)

Mr. John Watson  
U.S. Pipe and Foundry Co.  
General Office  
3300 First Ave, North  
Birmingham, AL 35202

RE: Part B Permit or Closure Plan for TSD Facilities with Interim Status  
U.S. Pipe & Foundry Co.  
Birmingham, Tennessee  
EPA ID No.: TND 07 489 3777 - CSP

Dear Mr. Watson:

This letter constitutes a formal request for you to submit a Part B permit application or a closure plan for all hazardous waste units, which are currently operating under interim status at your facility. In accordance with the Resource Conservation and Recovery Act (RCRA), the interim status for the unpermitted units at your facility will terminate on November 8, 1992. This rule applies to all treatment, storage and disposal (TSD) facilities.

The Division of Solid Waste Management (DSWM) requests that you submit a Part B application or closure plan for the affected units no later than May 15, 1992.

If you have any questions regarding this matter please contact Ms. Jacqueline Okoreeh-Baah or Ms. Dilraj Mokha of my staff at (615) 741-3424.

Sincerely,

Tom Tiesler, Director  
Division of Solid Waste Management

JTT/DM/F2042111

cc: Mr. G. Alan Farmer, EPA, Region IV  
Mr. Wayne Garfinkel, EPA, Region IV  
Ms. Jacqueline Okoreeh-Baah, Chief, Hazardous Permitting  
Guy Moose, DSWM, Chattanooga Field Office  
Joe Sanders, Office of General Counsel, TDEC  
HWPU Files

10 645  
APR 27 1992  
RECEIVED

MWPS002114



**U.S. PIPE & FOUNDRY  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
P.O. Box 311  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**

**U.S. PIPE & FOUNDRY  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
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Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**



U.S. PIPE & FOUNDRY FACILITY  
CHATTANOOGA, TENNESSEE  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
ERCE # D538-003

This report provides a description of the closure activities at the Fly Ash Mixing/Accumulation Bins at the U.S. Pipe & Foundry (USP) Facility located along the Tennessee River in a heavily industrial area of northwestern Chattanooga (Figure 1).

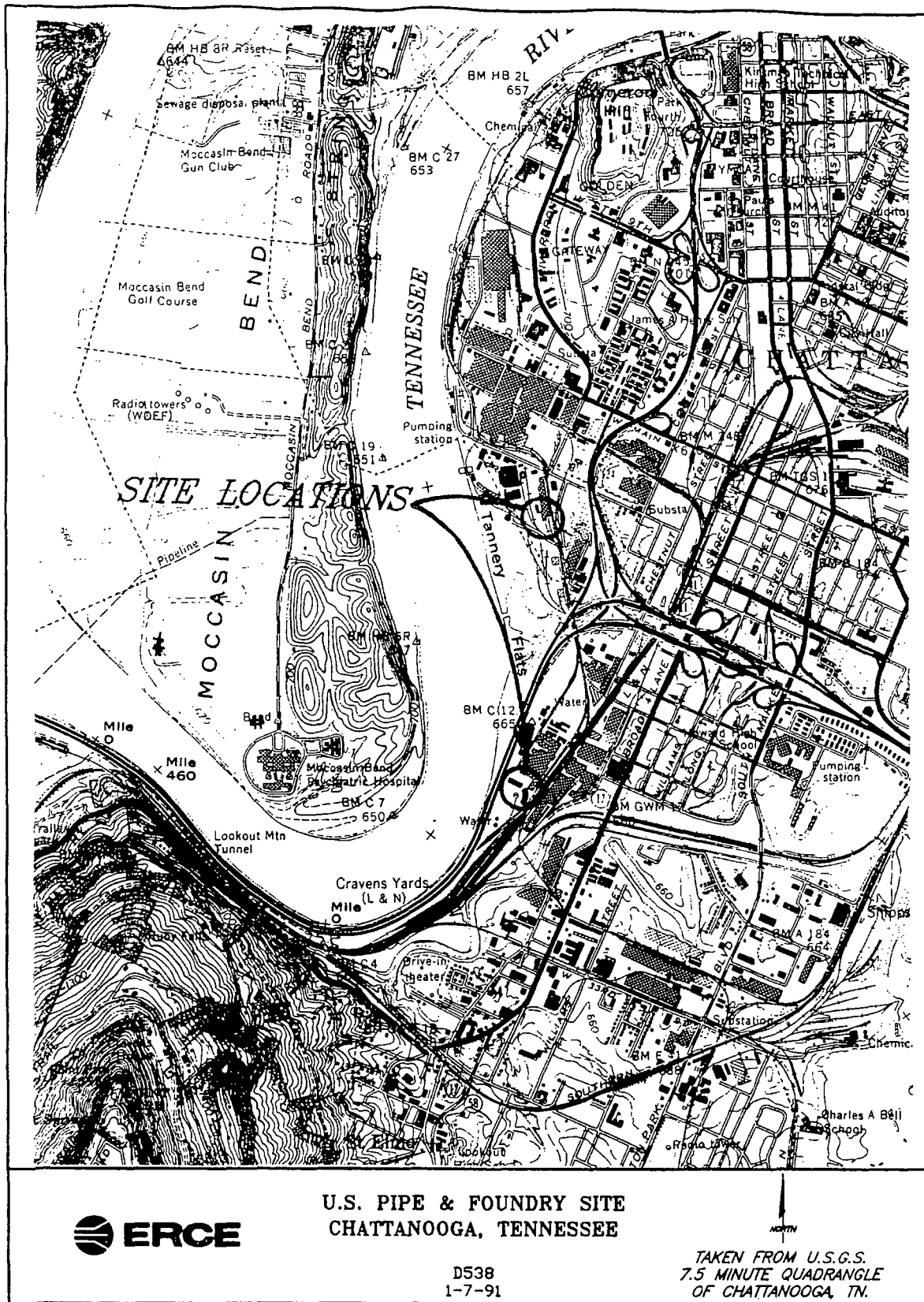
BACKGROUND

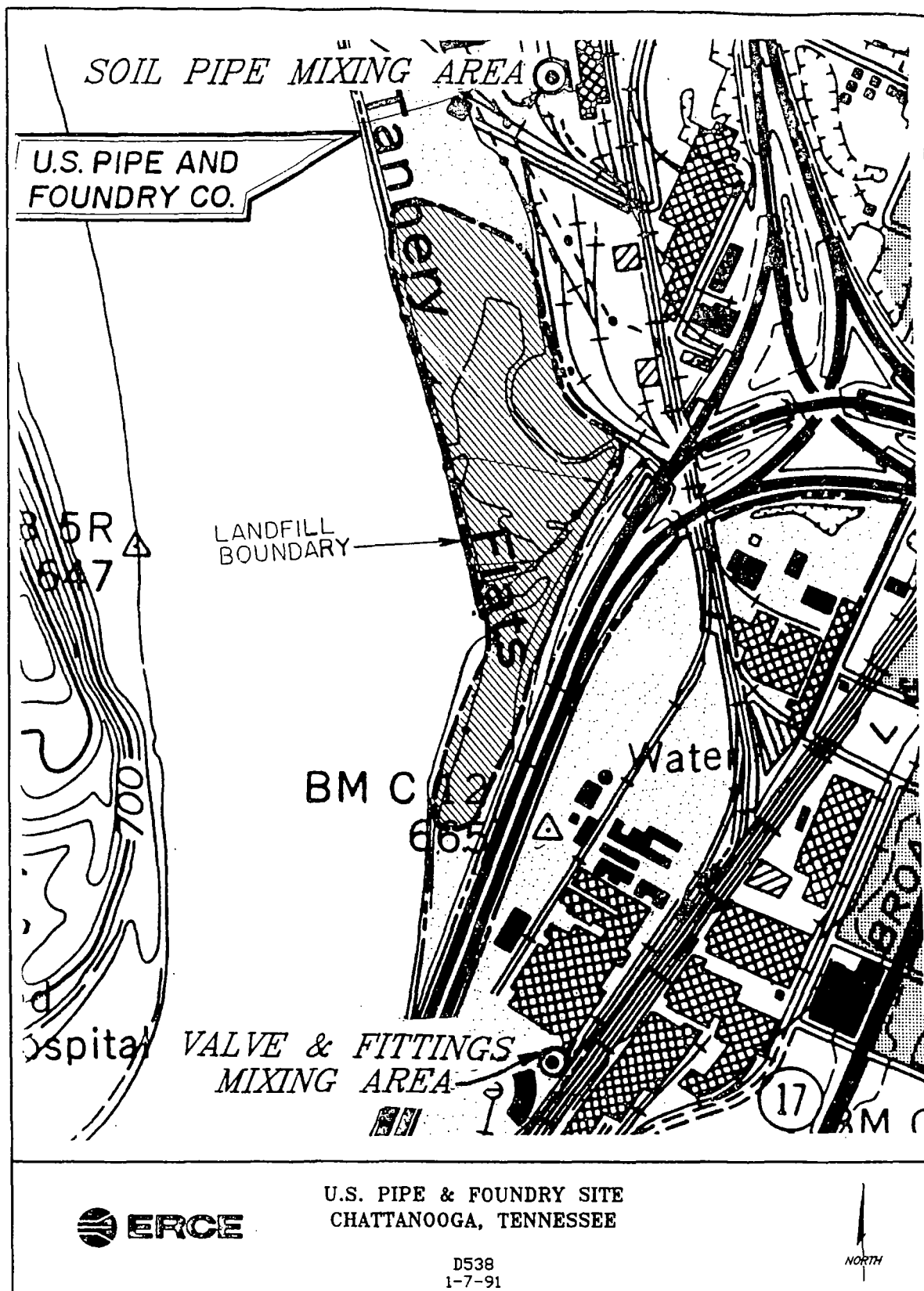
There were two manufacturing units of the subject site, consisting of the USP Soil Pipe Plant (ceased operation in May 1990) and the USP Valve and Fittings Unit. Both units were in close proximity to one another and consisted of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. Both units deposited solid waste into the landfill. One of the solid wastes generated at this facility is the cupola fly ash collected at the baghouse collectors.

Various solid waste, including the baghouse dust and fly ash were blended/mixed on concrete pads prior to being deposited in the landfill. One pad served the Soil Pipe unit and one served the Valve and Fittings unit. Figure 2 shows the locations of the two mixing areas.

The mixing pad that served the Valve and Fittings unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 30 feet in plan dimensions. No significant cracking or degradation of the pad was observed.

The pad which served the Soil Pipe unit is a concrete slab with concrete walls on two sides, approximately 20 feet by 20 feet in





plan dimensions. Similarly, this pad also appeared competent, as no indications of significant degradation was observed.

#### CLOSURE

In January, 1989, U.S. Pipe & Foundry initiated operation of a fly ash fixation system for the treatment of the fly ash from both plants. Subsequent to this installation operation, the bins were closed to the mixing of the cupola fly ash waste. However, the concrete bins continued to be used for mixing of other solid waste. Closure of these mixing pads consisted of removing all solid waste using front end loaders and small earth moving equipment.

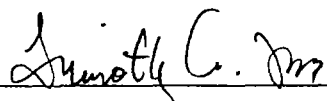
#### SAMPLING PLAN


Six samples will be collected from each of the concrete pads at the approximate locations shown by Figures 3 and 4. Four of the samples will be collected from sediment/waste remaining on the waste pads, such as at the contact of the vertical walls and floor. Furthermore, two samples will be collected from the gravel surface at the perimeter of the concrete pads. Samples will be analyzed for the analysts shown by Table 1, using Toxicity Characteristic Leaching Procedure (TCLP).

#### SCHEDULE

The proposed schedule for conducting the field sampling, analysis of samples and issuing a summary report is shown by Figure 5.

Respectfully submitted,

  
Timothy A. Lee, PG

  
Mark J. Levy, PE, CPG

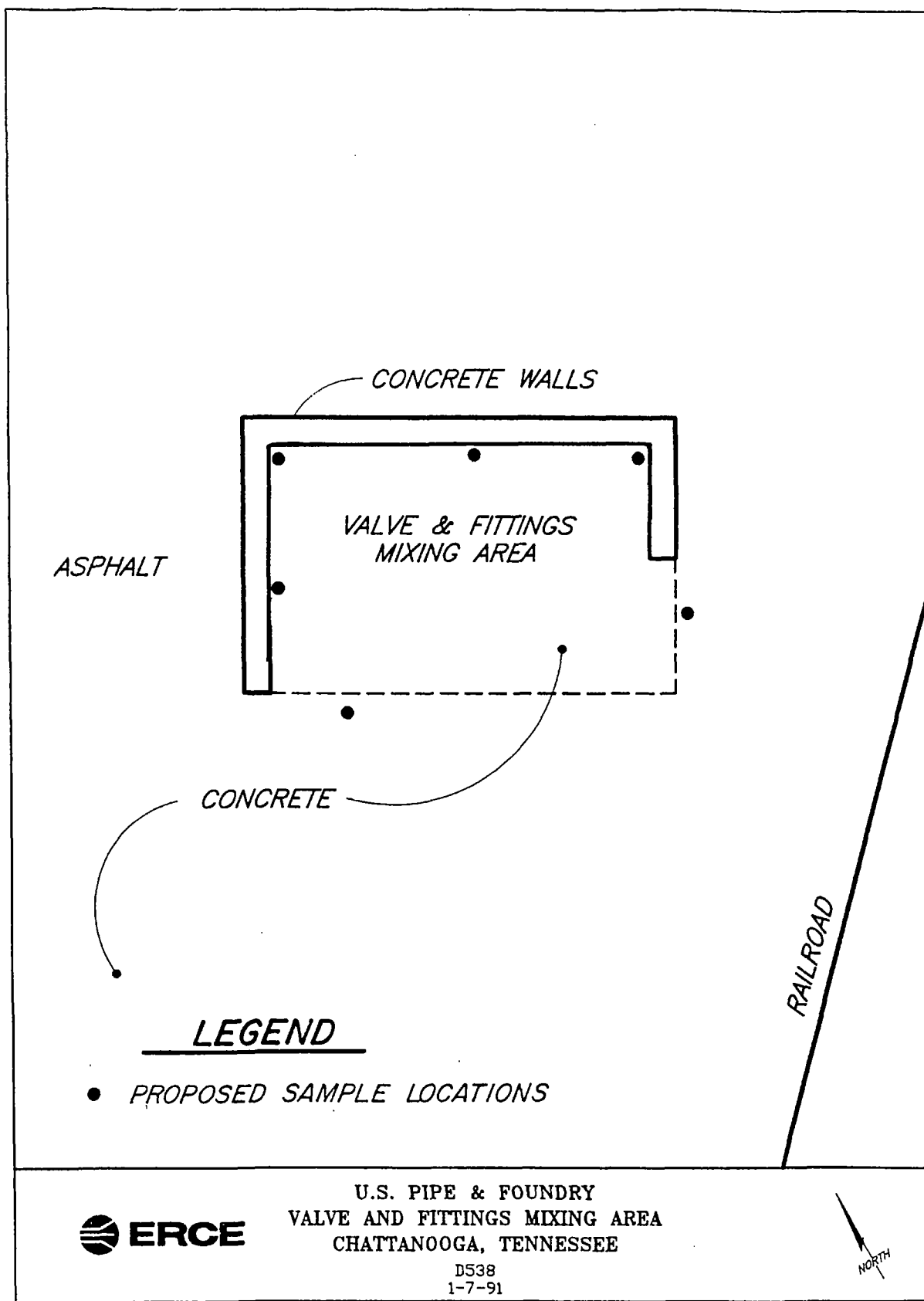
- 5 -

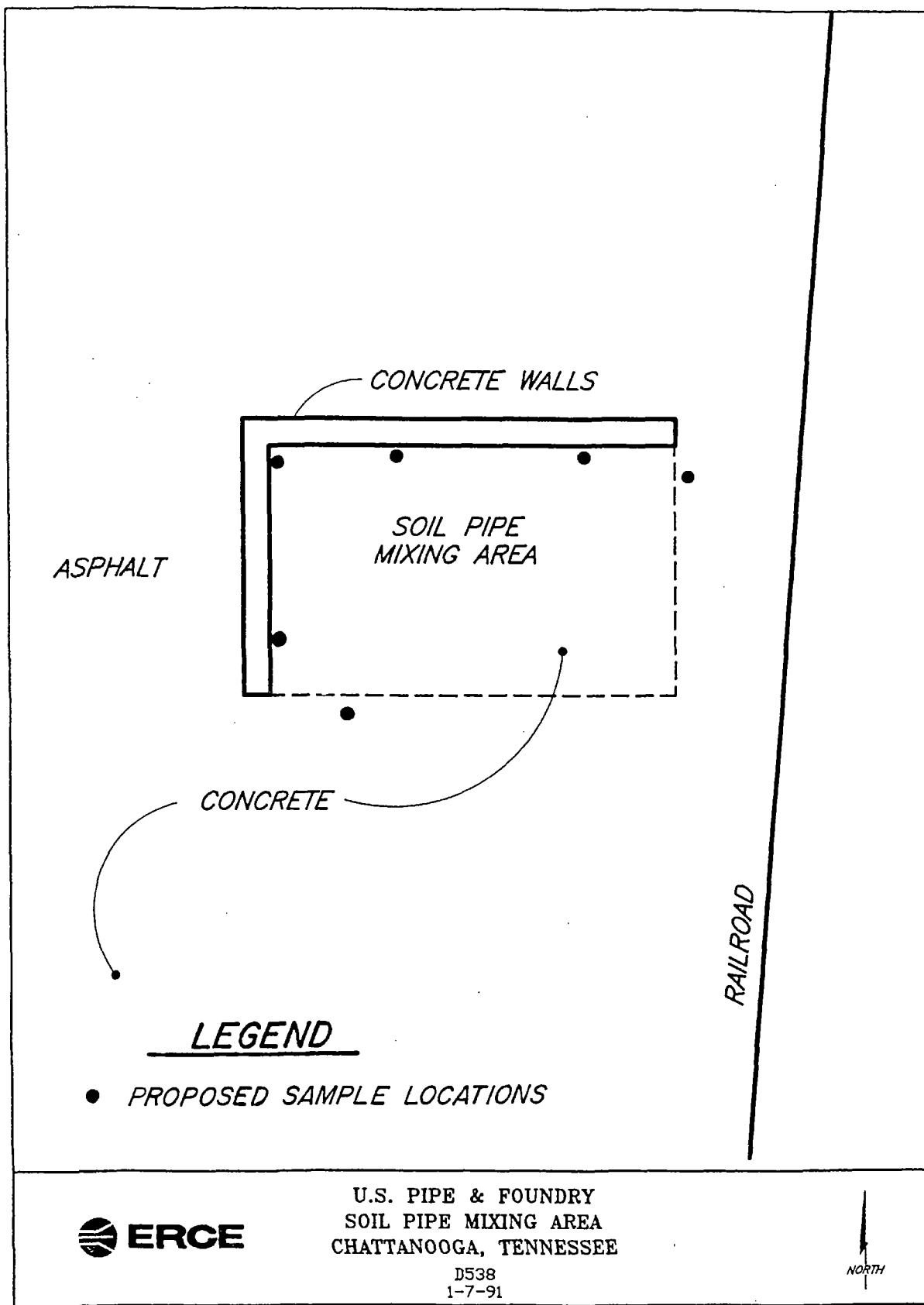
Table 1

U. S. Pipe & Foundry Facility  
Proposed Analysis Parameters  
for Soil Samples Collected at the  
Fly Ash Mixing/Accumulation Bins

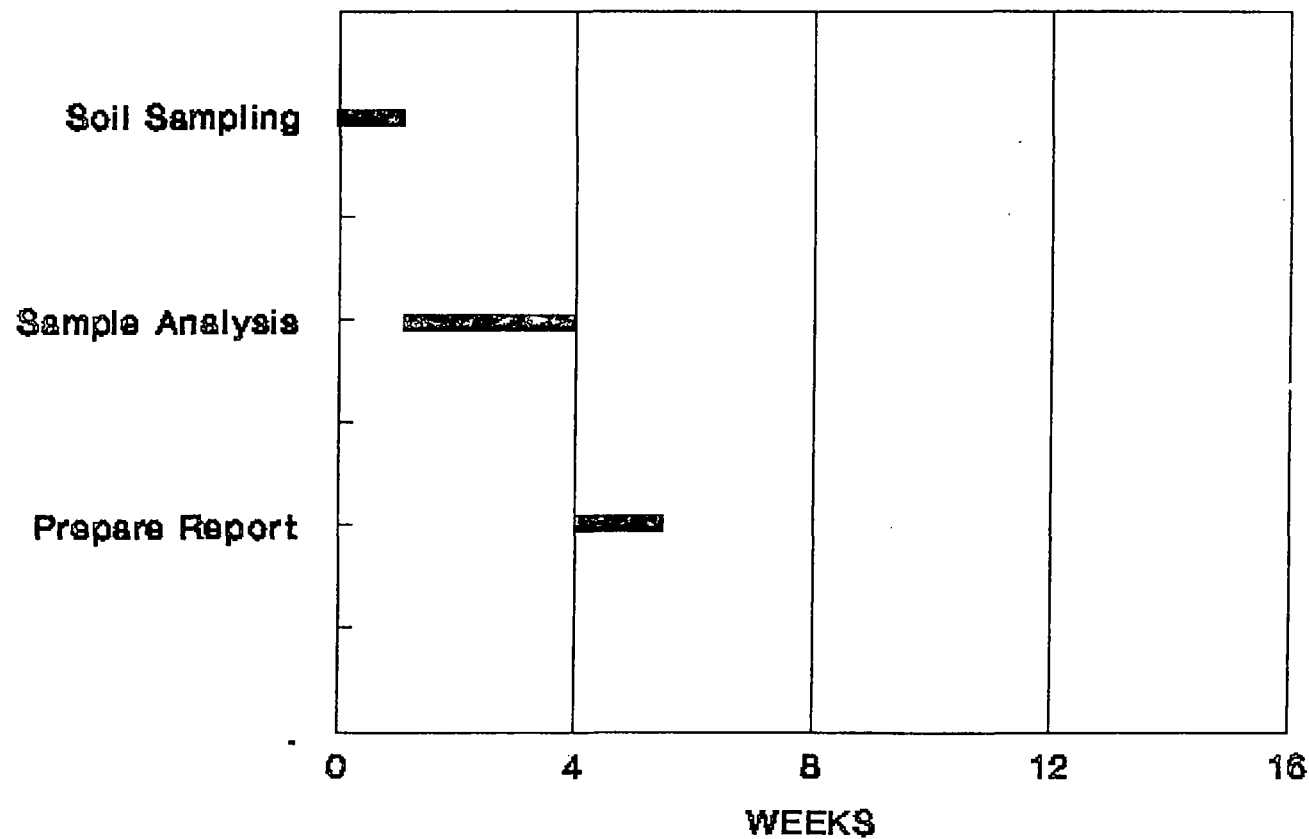
<u>Parameters</u>	<u>EPA Test Method</u>
Cadmium, TCLP	6010
Total Cyanide, TCLP	1311, 335.3
Iron, TCLP	6010
Lead, TCLP	6010
Total Phenols, TCLP	1311
Toluene, TCLP	8240

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4-79-020, Revised March 1983.





**Figure 5 - Proposed Schedule  
US Pipe & Foundry Mixing Bins Closure**



**Day 0 starts with approval of Plan.**

TO JW 4-14-92

DATE 4-14 TIME 3:17

WHILE YOU WERE OUT

MR./MS. Ronny Bowers

of State of Tennessee

Phone Number \_\_\_\_\_

Telephoned ( ☒ ) Please call ( ☐ )

Came by to see you ( ☐ ) Wants to see you ( ☐ )

Returned your call ( ☐ ) Will call again ( ☒ )

Message rec'd ltr from EPA  
first of next wk.

referring the closure

plan to the State

(fax copy tomorrow)

will be out of town

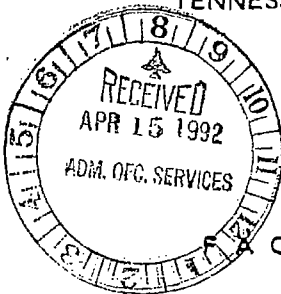
this wk + will call

again -

STD-152 Rev. 11-79

Budget Code: 327. 35. 40

Time Sent: \_\_\_\_\_



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF SOLID WASTE MANAGEMENT  
FOURTH FLOOR, CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TN 37243

FAX NUMBER: 615-741-4666

F A C S I M I L E   T R A N S M I S S I O N   S H E E T

DATE SENT: April 15, 1992 NUMBER OF PAGES: 2 (Including  
Cover Sheet)

TO: John Watson PHONE NUMBER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ FAX NUMBER: 205-254-7494

FROM: Ronnie Bowers PHONE NUMBER: 615-741-7091

If the following message is received poorly,  
or if verification is needed, please call:

- Jean Bond, at 615-741- 7091

SPECIAL INSTRUCTIONS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PLEASE NUMBER ALL PAGES



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

APR 08 1992

APR 08 1992

RLB

4WD-RCRA/FF

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Environment  
and Conservation  
701 Broadway  
Customs House, 4th Floor  
Nashville, Tennessee 37243-1535

Fax Copy Rec. 4-15-92

Re: Mixing Bin Closures

CSP-TND07-489-3777

CVF-TND98-031-6301

Re: U.S. Pipe & Foundry  
EPA ID Number TND 074 873 777

Dear Mr. Tiesler:

This letter is in regard to the closure plan submitted by U.S. Pipe & Foundry in response to the Consent Agreement and Final Order entered into between U.S. Pipe and EPA. } In Jan. 91!

Although the Consent Agreement and Final Order was issued by EPA, pursuant to the Memorandum of Agreement between EPA and the State of Tennessee, we are requesting that the Division of Solid Waste Management be the lead agency for reviewing and approving submissions required by the Final Order.

If you have any questions or comments, please contact Judy Marshall of my staff at (404) 347-7603.

Sincerely yours,

G. Alan Farmer

G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

cc: Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY and TN Unit

Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

APR 08 1992

APR 06 1992

RLB

4WD-RCRA/FF

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Environment  
and Conservation  
701 Broadway  
Customs House, 4th Floor  
Nashville, Tennessee 37243-1535

Fax Copy Rec. 4-15-92

Re: Mixing Bin Closures

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If you have any questions or comments, please contact Judy Marshall of my staff at (404) 347-7603.

Sincerely yours,

G. Alan Farmer

G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

cc: Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY and TN Unit

✓ Copies to: (FYI)

D.R. Wedell

W.E. Fleck

Wayne Berry

John Pikciunas

J.R. Walker

D.C. Wallace

Jim Smallwood

Printed on Recycled Paper



ERC Environmental and  
Energy Services Co., Inc.

725 Pellissippi Parkway  
P.O. Box 22879  
Knoxville, Tennessee 37933  
Telephone: 615-966-9761  
Fax: 615-966-4155

10 January 1991

Mr. James H. Scarbrough, P.E., Chief  
RCRA & Federal Facilities Branch  
U.S. EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

Copies to: ✓

W.E. Fleck  
J. R. Walker  
Wayne Berry  
Bill Vines/Jim Wright  
(w/encl.)

Dear Mr. Scarbrough:

On behalf of our client, U.S. Pipe and Foundry, please find  
enclosed documents required by final order dated 12 December  
1990.

If you have any further questions, please give me a call at (615)  
966-9761.

Sincerely,

ERCE

*Timothy A. Lee*

Timothy A. Lee, PG

TAL/pdg

Enclosure

A. U. ENG.  
Watson  
JAN 11 1991  
RECEIVED



ERC Environmental and  
Energy Services Co., Inc.

725 Pellissippi Parkway  
P.O. Box 22879  
Knoxville, Tennessee 37933  
Telephone: 615-966-9761  
Fax: 615-966-4155

10 January 1991

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health  
and Environment  
Custom House  
701 Broadway  
Nashville, Tennessee 37219

Dear Mr. Tiesler:

On behalf of our client, U.S. Pipe and Foundry, please find enclosed documents required by final order dated 12 December 1990.

If you have any further questions, please give me a call at (615) 966-9761.

Sincerely,

ERCE

A handwritten signature in cursive script that reads "Timothy A. Lee".

Timothy A. Lee, PG

TAL/pdg

Enclosure



**U.S. PIPE & FOUNDRY  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
P.O. Box 311  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**

U.S. PIPE & FOUNDRY FACILITY  
CHATTANOOGA, TENNESSEE  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
ERCE # D538-003

This report provides a description of the closure activities at the Fly Ash Mixing/Accumulation Bins at the U.S. Pipe & Foundry (USP) Facility located along the Tennessee River in a heavily industrial area of northwestern Chattanooga (Figure 1).

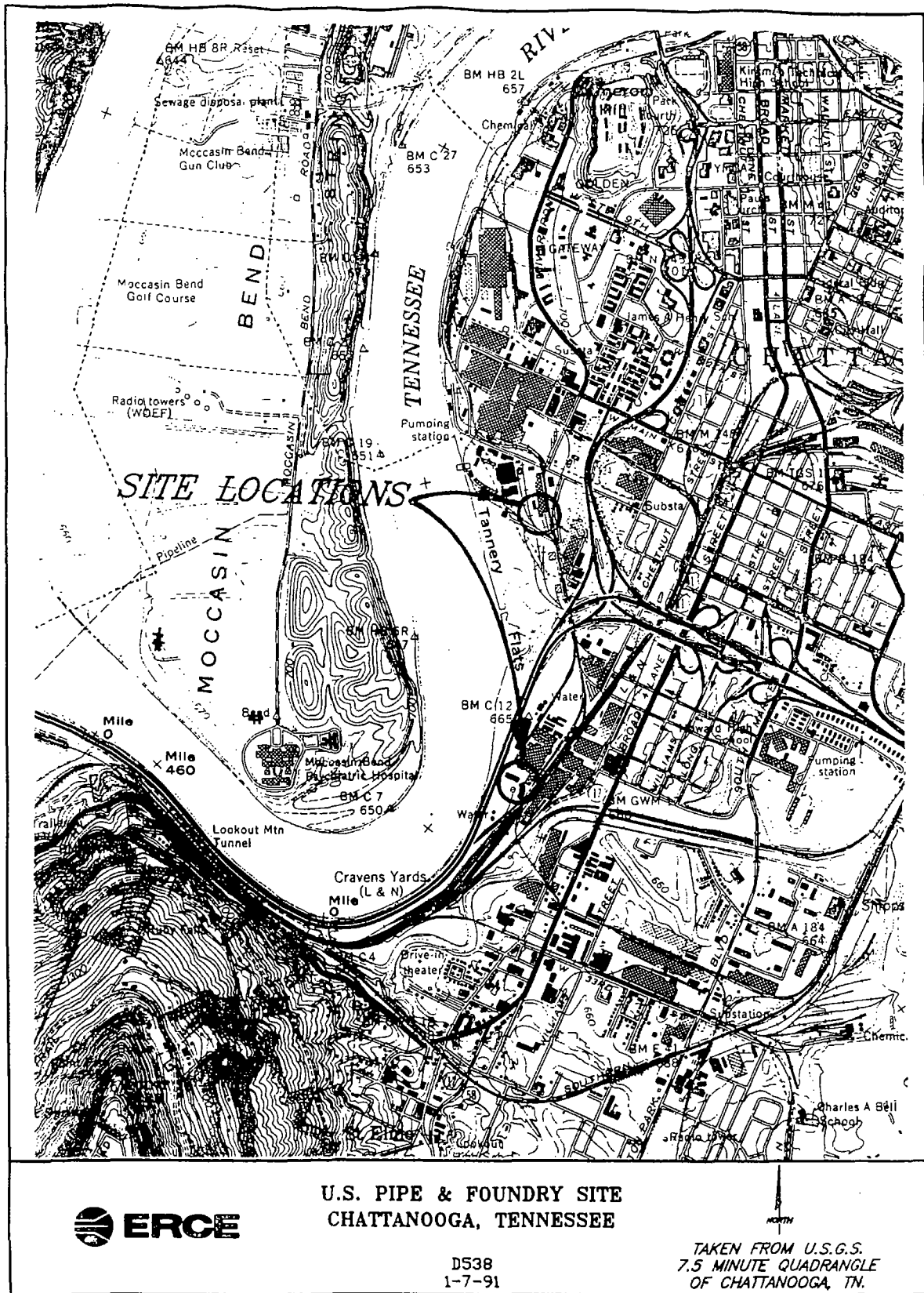
**BACKGROUND**

There were two manufacturing units of the subject site, consisting of the USP Soil Pipe Plant (ceased operation in May 1990) and the USP Valve and Fittings Unit. Both units were in close proximity to one another and consisted of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. Both units deposited solid waste into the landfill. One of the solid wastes generated at this facility is the cupola fly ash collected at the baghouse collectors.

Various solid waste, including the baghouse dust and fly ash were blended/mixed on concrete pads prior to being deposited in the landfill. One pad served the Soil Pipe unit and one served the Valve and Fittings unit. Figure 2 shows the locations of the two mixing areas.

The mixing pad that served the Valve and Fittings unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 30 feet in plan dimensions. No significant cracking or degradation of the pad was observed.

The pad which served the Soil Pipe unit is a concrete slab with concrete walls on two sides, approximately 20 feet by 20 feet in



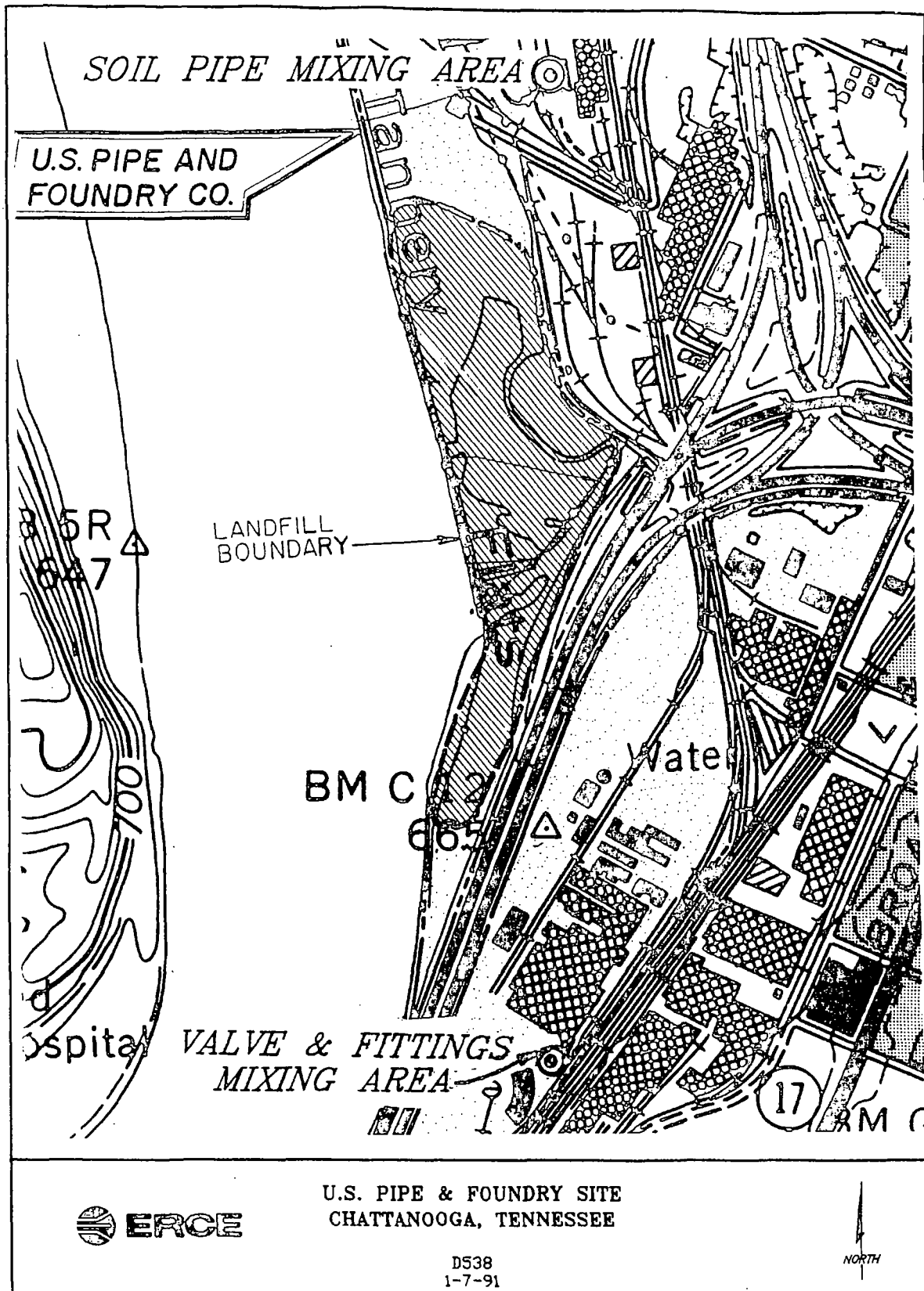


FIGURE 2

plan dimensions. Similarly, this pad also appeared competent, as no indications of significant degradation was observed.

#### CLOSURE

In January, 1989, U.S. Pipe & Foundry initiated operation of a fly ash fixation system for the treatment of the fly ash from both plants. Subsequent to this installation operation, the bins were closed to the mixing of the cupola fly ash waste. However, the concrete bins continued to be used for mixing of other solid waste. Closure of these mixing pads consisted of removing all solid waste using front end loaders and small earth moving equipment.

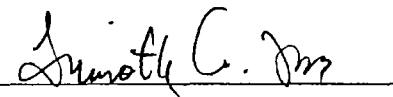
#### SAMPLING PLAN

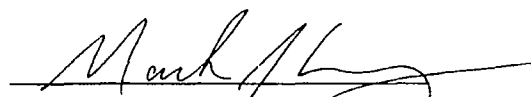
Six samples will be collected from each of the concrete pads at the approximate locations shown by Figures 3 and 4. Four of the samples will be collected from sediment/waste remaining on the waste pads, such as at the contact of the vertical walls and floor. Furthermore, two samples will be collected from the gravel surface at the perimeter of the concrete pads. Samples will be analyzed for the analysts shown by Table 1, using Toxicity Characteristic Leaching Procedure (TCLP).

#### SCHEDULE

The proposed schedule for conducting the field sampling, analysis of samples and issuing a summary report is shown by Figure 5.

Respectfully submitted,

  
Timothy A. Lee, PG

  
Mark J. Levy, PE, CPG

plan dimensions. Similarly, this pad also appeared competent, as no indications of significant degradation was observed.

Subsequent to this operation, the bins were closed to the mixing of the capsule baghouse waste. However, the concrete bins continued to be used for mixing of other solid waste.

#### CLOSURE

In January, 1989, U.S. Pipe & Foundry initiated operation of a fly ash fixation system for the treatment of the fly ash from both plants. Closure of these mixing pads consisted of removing all solid waste using front end loaders and small earth moving equipment.

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#### SCHEDULE

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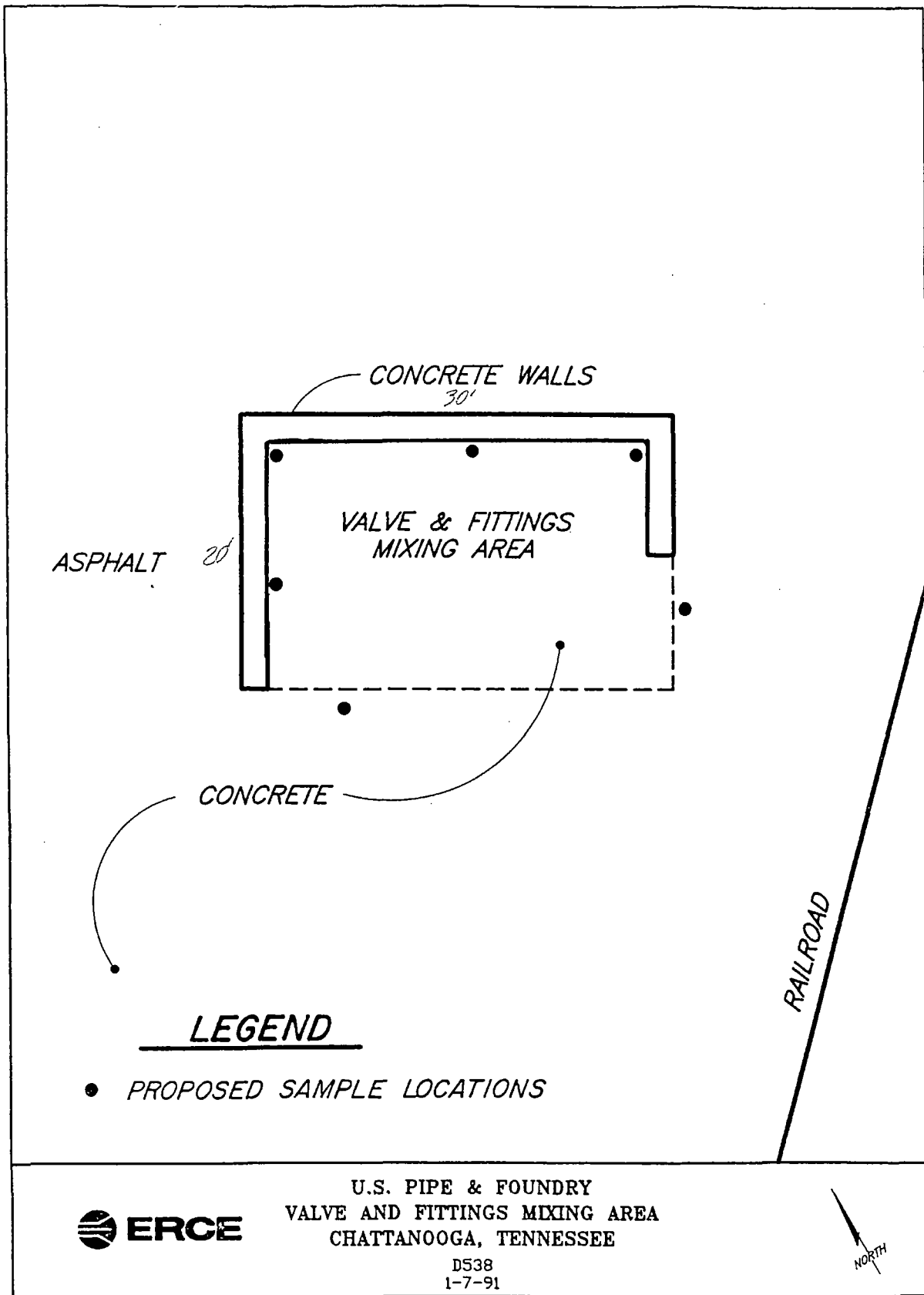
*Extra Page*

Table 1

U. S. Pipe & Foundry Facility  
Proposed Analysis Parameters  
for Soil Samples Collected at the  
Fly Ash Mixing/Accumulation Bins

<u>Parameters</u>	<u>EPA Test Method</u>
Cadmium, TCLP	6010
Total Cyanide, TCLP	1311, 335.3
Iron, TCLP	6010
Lead, TCLP	6010
Total Phenols, TCLP	1311
Toluene, TCLP	8240

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4-79-020, Revised March 1983.



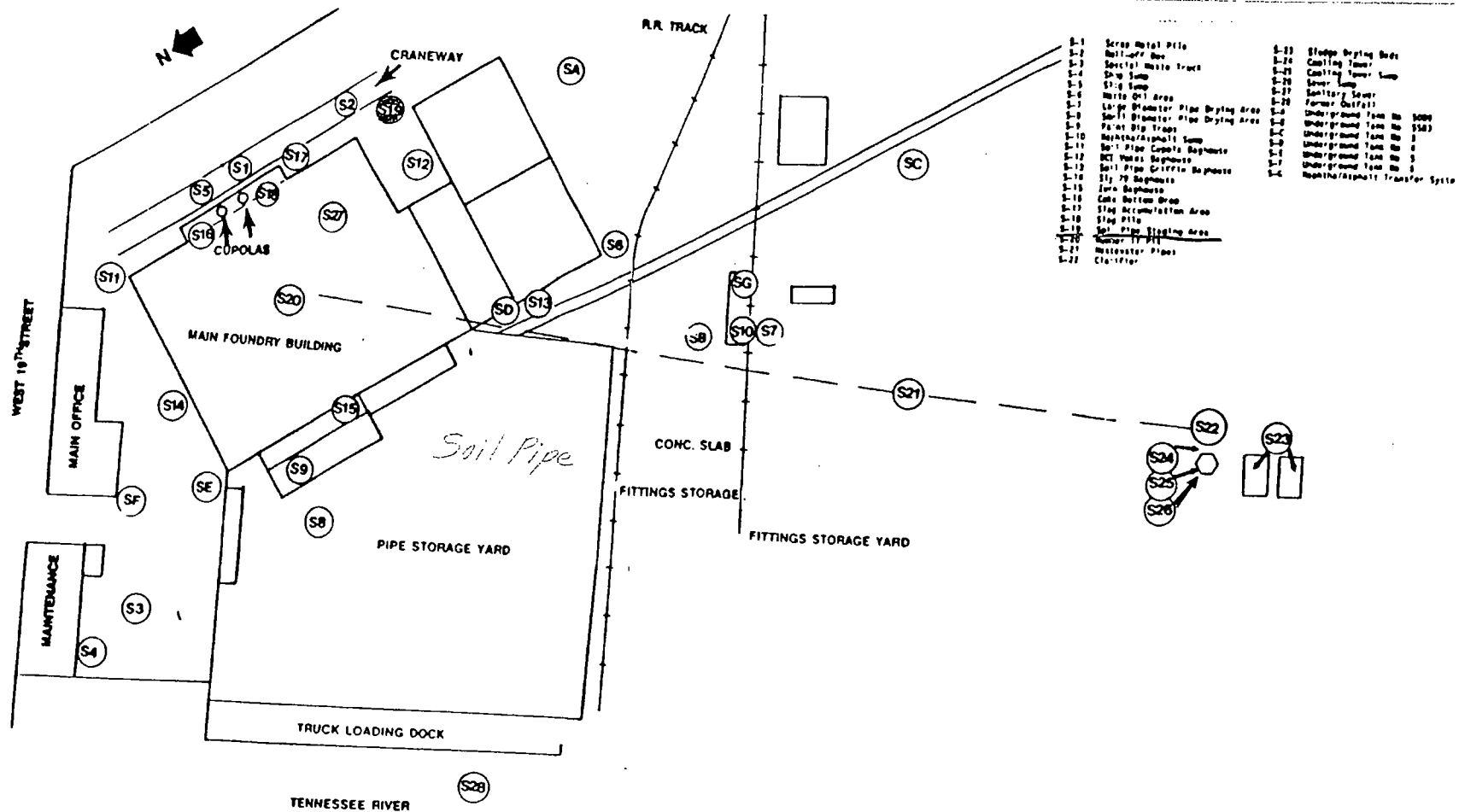
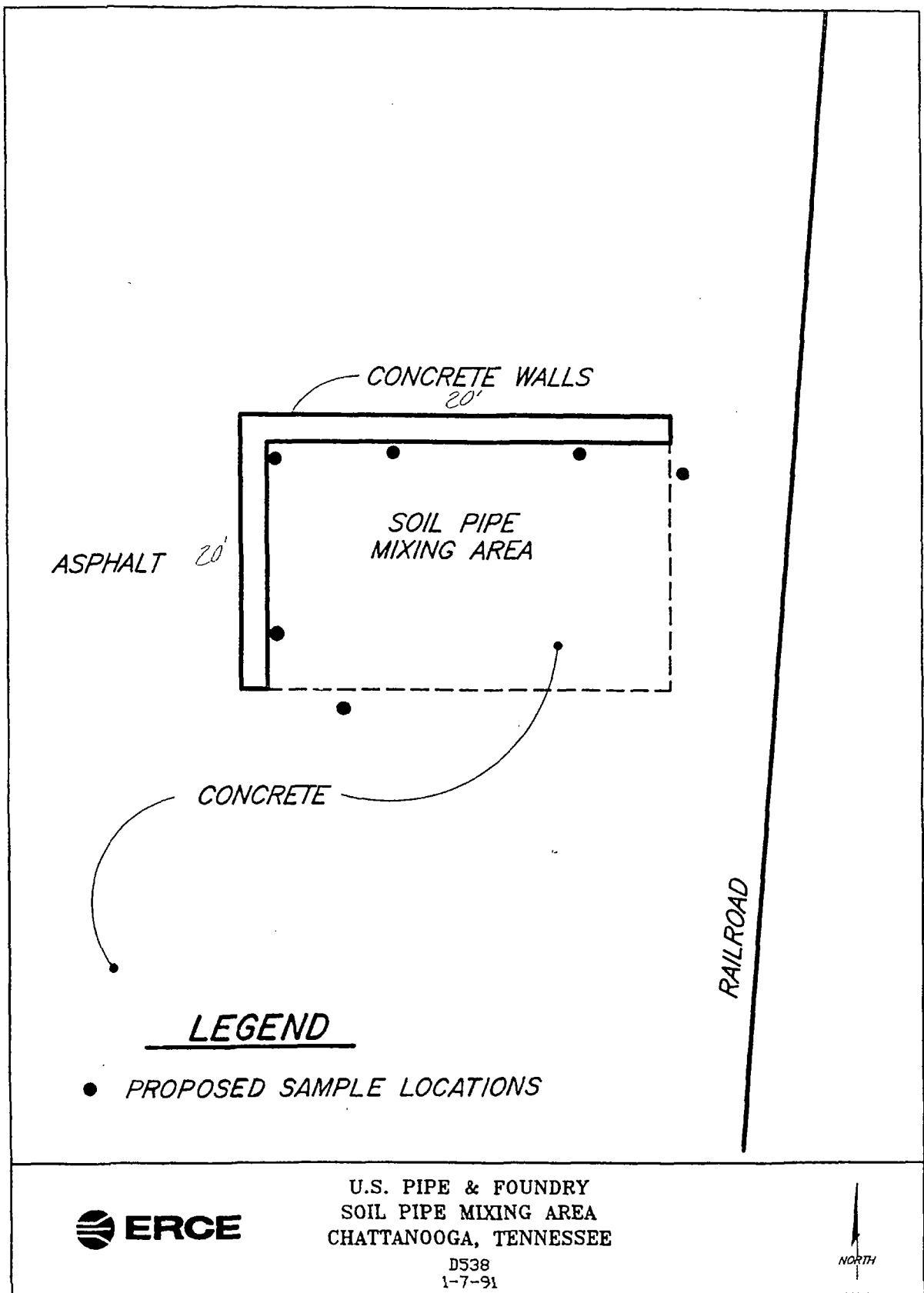


Figure III-3 Location of Solid Waste Management Units (SWMUs) and Other Units of Concern (AOCs) at the Soil Pipe Division Reference Point

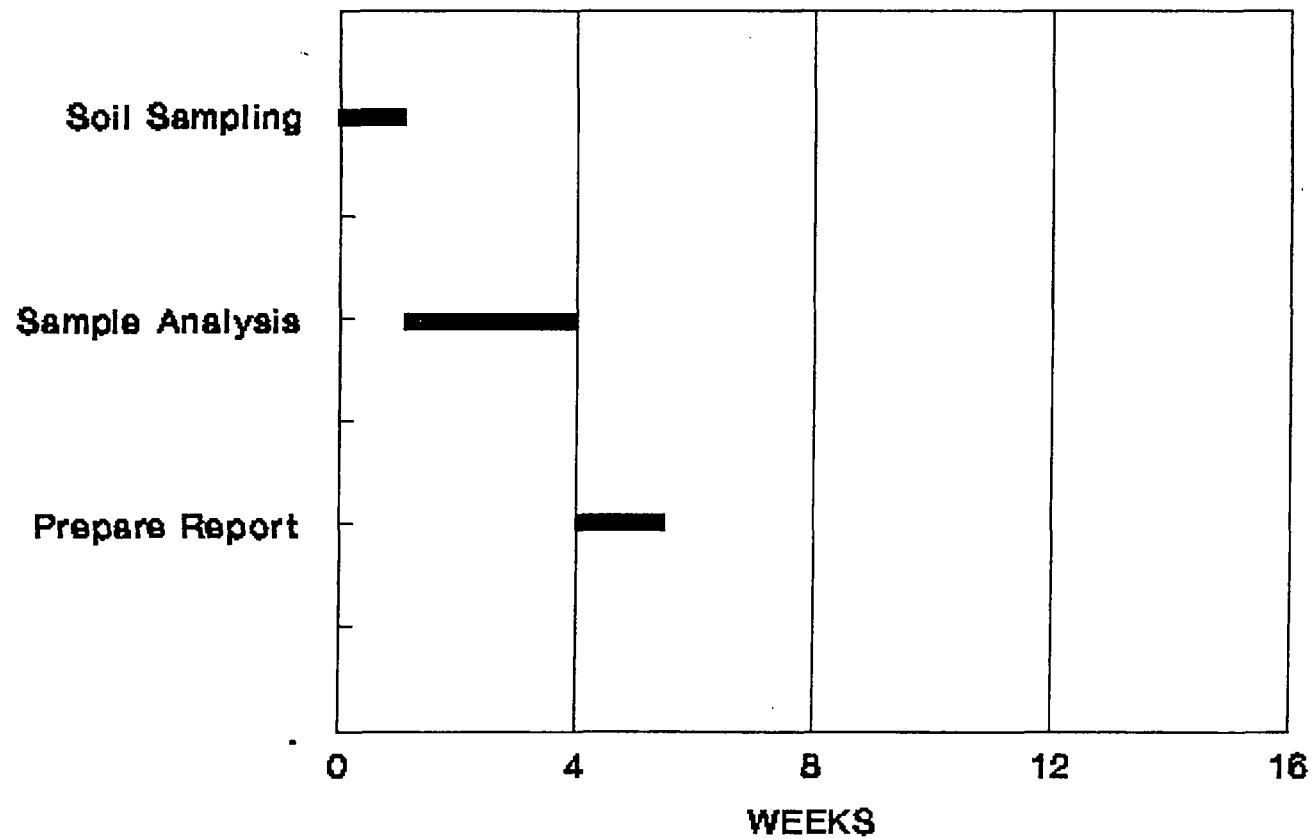
S-19: Mixing Bin to be closed!

Figure not to scale

III-4



**Figure 5 - Proposed Schedule  
US Pipe & Foundry Mixing Bins Closure**



**Day 0 starts with approval of Plan.**

*Env. Services File Copy*

*Solutions Taking Shape*

**CLOSURE ACTIVITIES REPORT  
FLY ASH ACCUMULATION/MIXING BINS  
SOIL PIPE PLANT AND VALVE AND  
FITTINGS PLANT  
U.S. PIPE & FOUNDRY COMPANY  
CHATTANOOGA, TENNESSEE  
TND # 07 487 3777 ~ 489!  
TND # 98 031 6301 ✓**

**Prepared For:  
US Pipe & Foundry Company  
P.O. Box 311  
2701 Chestnut Street  
Chattanooga, Tennessee 37401-0311**

**Prepared By:  
Ogden Environmental and Energy Services Co., Inc.  
1009 Commerce Park Drive, Suite 100  
Oak Ridge, Tennessee 37830**

**22 December 1992**

**Ogden File No. 0-4227-0100**



**ENVIRONMENTAL AND ENERGY SERVICES**



MWPS002142

**CLOSURE ACTIVITIES REPORT  
FLY ASH ACCUMULATION/MIXING BINS  
SOIL PIPE PLANT AND VALVE AND FITTINGS PLANT  
U.S. PIPE & FOUNDRY COMPANY  
CHATTANOOGA, TENNESSEE  
TND # 07 48<sup>7</sup> 3777 9  
TND # 98 031 6301**

**Prepared For:  
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**MWPS002143**

**CLOSURE ACTIVITIES REPORT  
FLY ASH ACCUMULATION/MIXING BINS  
SOIL PIPE PLANT AND VALVE AND FITTINGS PLANT  
US PIPE & FOUNDRY COMPANY**

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- I. SAMPLING AND ANALYSIS WORK PLAN
- II. LABORATORY REPORTS

## 1.0 INTRODUCTION

The following report describes the field activities and analytical results from sampling at two waste mixing bins operated by United States Pipe & Foundry Company (US Pipe) in Chattanooga, Tennessee. Sampling at the subject waste pile mixing bins was in response to a Consent Agreement and Final Order signed on 12 December 1990 requiring activities to determine whether all hazardous waste and contaminated materials were removed from the mixing bins.



## 2.0 SAMPLING PLAN

All field activities and sampling protocols for the sampling event were performed in accordance with the Sampling and Analysis Work Plan dated 16 November 1992. The Sampling and Analysis Plan (SAP) and Health and Safety Plan are included in Appendix I.

TAL(usp\_binz.rpt)

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**OGDEN**  
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### 3.0 GENERAL DESCRIPTION OF SAMPLING OBJECTIVES

US Pipe has operated two waste accumulation/ mixing bins; one each at the Soil Pipe Plant which ceased operation in May 1990 and the Valve and Fittings Plant. One of the wastes generated and mixed-in at these facilities was cupola fly ash collected at the baghouse collectors. Cupola fly ash is a hazardous waste as defined in Section 1004(5) of the Resource Conservation and Recovery Act (RCRA).

Consistent with the requirements of the Consent Agreement and Final Order, a Sampling and Analysis Plan was prepared to determine whether or not all waste and contaminated materials were removed at the waste mixing bins. The overall objective of the activities described in the Sampling Analysis Plan was to develop data that will be used to confirm if the subject waste accumulation/mixing bins have had significant releases to the environment that warrant further investigation.

Six samples were collected from each mixing bin based on knowledge of the history of each of the waste pile mixing bins in conjunction with the observations made by the site geologist relative to discoloration or unusual soil conditions and submitted for analysis.

Figures 1 and 2 show the locations of the sediment sample locations.



## 4.0 DESCRIPTION OF THE SAMPLING EVENT AND RESULTS

### 4.1 Valve and Fittings Plant Mixing Bin

The waste mixing pad that serves the Valve and Fittings Plant is a concrete slab with concrete walls on three sides, 53 feet by 25 feet in plan dimensions. No significant cracking or degradation of the pad is present.

To confirm the presence, nature, and extent of possible contamination caused by the activities at the mixing bin, six sediment samples were collected at the locations shown on Figure 1. Four of the samples were collected of materials remaining on the concrete pad at the contact of the vertical walls and floor of the pad. Two samples were collected from the surface of the asphaltic concrete at the perimeter of the concrete pad. All of the samples were collected using a decontaminated stainless steel spoon.

The analytical results for the samples collected at the Valve and Fittings Plant mixing bin are summarized in Table 1. The analytical data indicate none of the concentrations exceed the Proposed RCRA Clean-up Action Level (Federal Register, 40 CFR Parts 264, 265, 270, and 271; July 27, 1990). To our knowledge, there are no applicable regulatory action levels for concentrations of lead in soils. The laboratory reports are included in Appendix II.

### 4.2 Soil Pipe Plant Mixing Bin

The waste pile mixing pad that <sup>serves</sup> the Soil Pipe Plant is a concrete slab with concrete walls on two sides, 40 feet by 20 feet in plan dimensions. No significant cracking or degradation of the pad is present.

To confirm the presence, nature, and extent of possible contamination caused by the activities at the mixing bin, six samples were collected at the locations shown on Figure 2.

Four of the samples were collected of material remaining on the concrete pad at the contact of the vertical walls and floor of the pad. These samples were collected using a decontaminated stainless steel spoon. Two samples were collected from the gravel surface at the perimeter of the concrete pad. These samples were collected at a depth of 0.0 to 4.0 inches using a decontaminated stainless steel hand auger and decontaminated stainless steel spoon.

The analytical results for the samples collected at the Soil Pipe Plant mixing bin are summarized in Table 1. The analytical data indicate none of the concentrations exceed the Proposed RCRA Clean-up Action Level (Federal Register, 40 CFR Parts 264, 265, 270, and 271; July 27, 1990). The laboratory reports are included in Appendix II.

## 5.0 DECONTAMINATION PROCEDURES

Consistent with the Sampling and Analysis Work Plan, the hand auger and stainless steel spoon samplers were decontaminated before use. The decontamination waste rinsewater was collected and poured into a 55-gallon drum. The drum is to be properly disposed of by US Pipe.

## 6.0 WASTE DISPOSAL

The personal protective equipment (PPE) used during sampling activities at the site was placed in a 55-gallon drum, which was delivered to US Pipe for proper disposal.

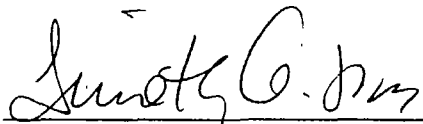
## 7.0 CONCLUSIONS AND RECOMMENDATIONS

### **7.1 Valve and Fittings Plant Mixing Bin**

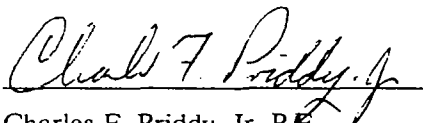
The analyses of the six sediment samples collected at the waste mixing bin at the Valve and Fitting Plant contained no concentration of any constituent of concern above either 40 CFR Part 261 or proposed 40 CFR Part 264 action levels. Therefore, the Valve and Fittings Plant waste mixing bin does not contain residual hazardous waste and further action at this facility is not required.

### **7.2 Soil Pipe Plant Mixing Bin**

The analyses of the six sediment samples collected at the waste mixing bin at the Soil Pipe Plant contained no concentration of any constituent of concern above either 40 CFR Part 261 or proposed 40 CFR Part 264 action levels. Therefore, the Soil Pipe Plant waste mixing bin does not contain residual hazardous waste and further action at this facility is not required.



Timothy A. Lee, RPG TN #743  
Hydrogeologist



Charles F. Priddy, Jr. P.E.  
Project Manager

Table 1

**Analytical Results for Sediment Samples  
United States Pipe and Foundry  
Valve and Fittings Plant / Soil Pipe Plant  
18 December 1992**

**Valve and Fittings Plant**

Sample No.	cadmium	lead	phenol	toluene	cyanide
VFP-SD-S01	BDL (a)	BDL	0.38	0.005	BDL
VFP-SD-S02	BDL	BDL	0.39	0.014	BDL
VFP-SD-S03	BDL	BDL	0.16	BDL	BDL
VFP-SD-S04	BDL	BDL	4.9	0.027	BDL
VFP-SD-S05	BDL	BDL	0.014	BDL	BDL
VFP-SD-S06	BDL	BDL	4.9	0.013	BDL
Detection Limits	0.1	0.5	0.005+	0.005	0.005
RCRA Standard (b)	4	(c)	5000	20000	2000

**Soil Pipe Plant**

Sample No.	cadmium	lead	phenol	toluene	cyanide
SP-SD-S01	BDL (a)	BDL	0.016	0.025	BDL
SP-SD-S02	0.2	4.5	0.008	BDL	BDL
SP-SD-S03	0.1	1.5	0.006	BDL	BDL
SP-SD-S04	0.2	1	0.006	BDL	BDL
SP-SD-S05	0.7	BDL	0.012	BDL	BDL
SP-SD-S06	BDL	BDL	0.008	BDL	BDL
Detection Limits	0.1	0.5	0.005+	0.005	0.005
RCRA Standard (b)	4	(c)	5000	20000	2000

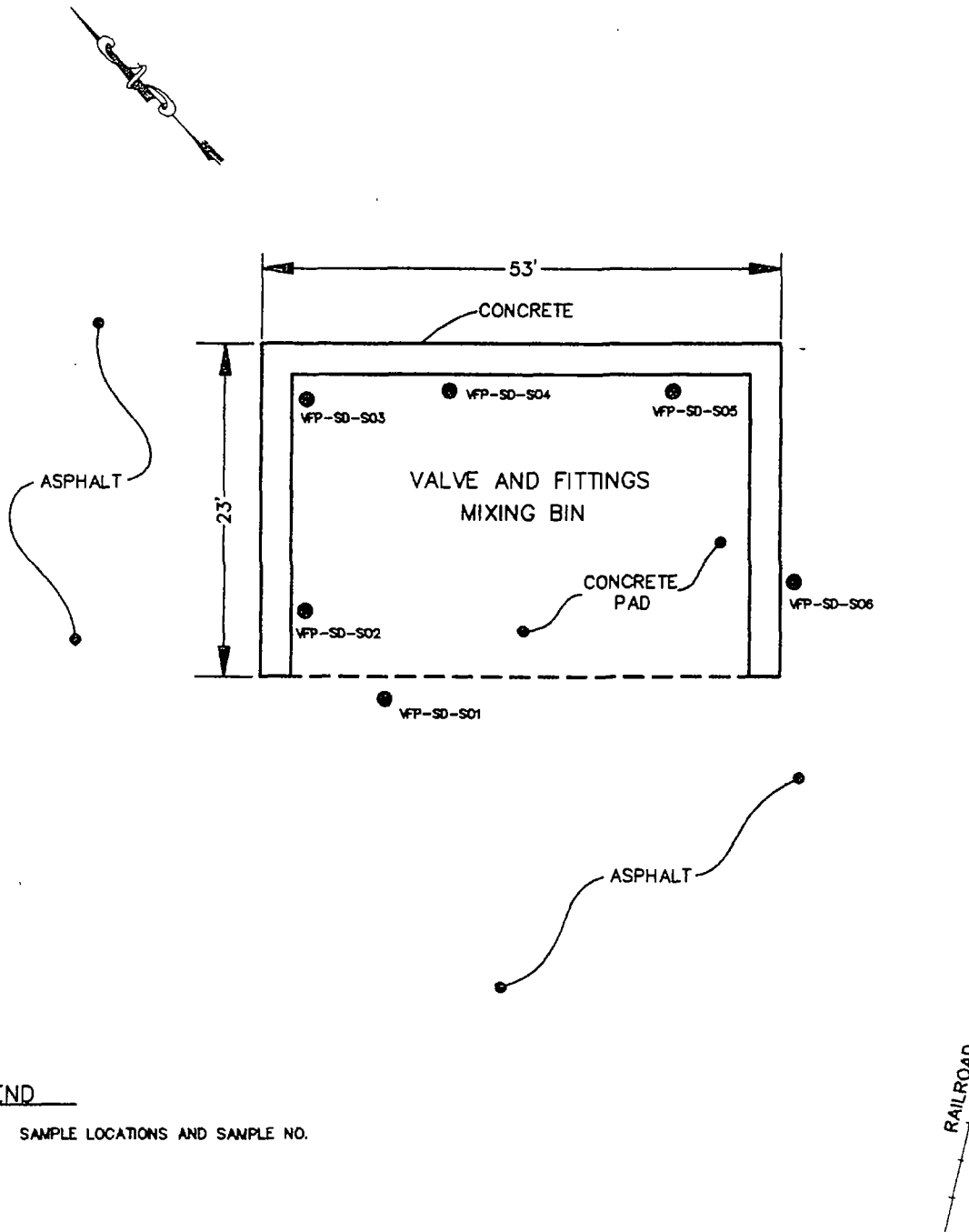
All results reported in PPM.

(a) Below Detection Limits

(b) Proposed RCRA clean-up action levels

(from Federal Register; Vol. 55, No. 145; Friday, July 27, 1990)

(c) There is no RCRA clean-up action level for concentrations of lead in soil.



**LEGEND**

- SAMPLE LOCATIONS AND SAMPLE NO.
- VFP-SD-S01

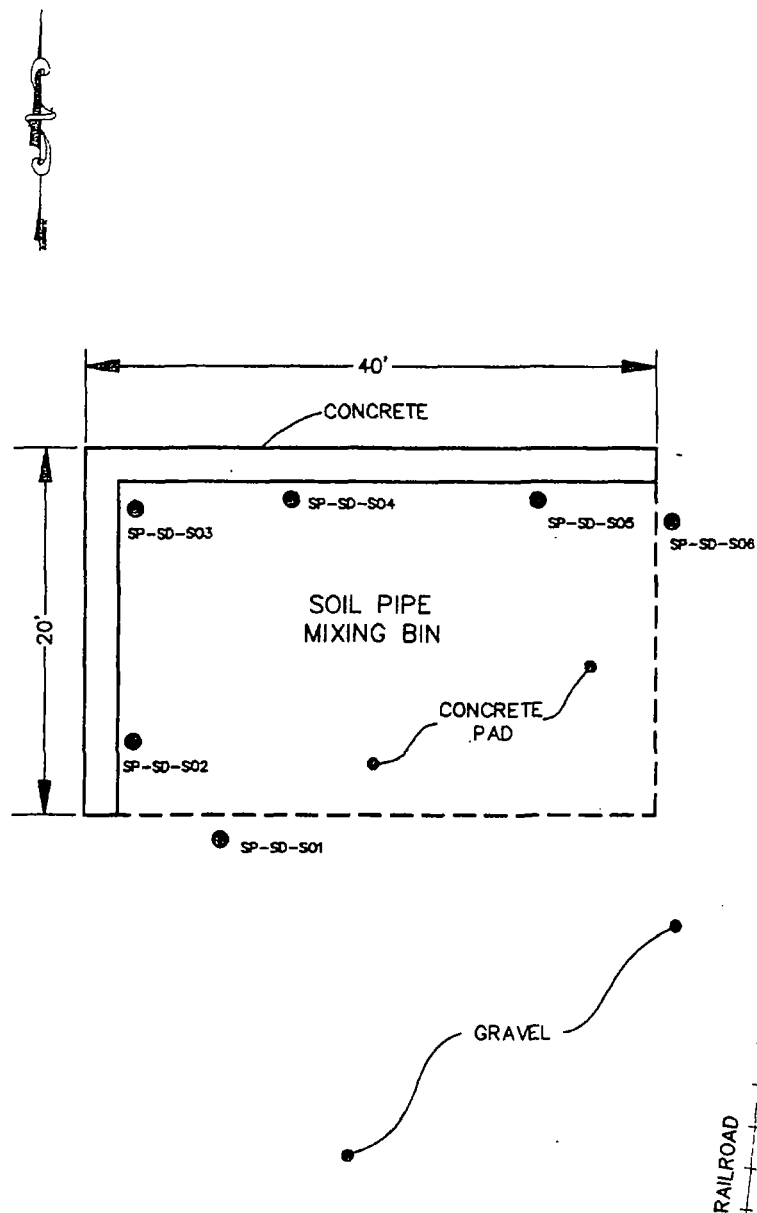
NOT TO SCALE

**OGDEN** ENVIRONMENTAL AND ENERGY SERVICES

1009 COMMERCE PARK DRIVE OAK RIDGE, TN 37830 615-481-8002

**FIGURE 1**  
**US PIPE AND FOUNDRY**  
**VALVE AND FITTINGS PLANT MIXING BIN**  
**SITE PLAN**  
 CHATTANOOGA, TENNESSEE

OGDEN PROJECT # 042270400/0001  
 FACILITY ID. # 3-330761



**LEGEND**

- SAMPLE LOCATIONS AND SAMPLE NO.
- SP-SD-S01

NOT TO SCALE

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1009 COMMERCE PARK DRIVE • OAK RIDGE, TN 37830 • 815-481-8002

**FIGURE 2**  
**US PIPE AND FOUNDRY**  
**SOIL PIPE PLANT MIXING BIN**  
**SITE PLAN**  
 CHATTANOOGA, TENNESSEE

OGDEN PROJECT # 042270400/0001  
 FACILITY ID.# 3-330761

## **APPENDIX I**

### **SAMPLING AND ANALYSIS WORK PLAN**



OGDEN CONSULTING



MWPS002156

**FIELD SAMPLING AND ANALYSIS PLAN  
AND  
HEALTH AND SAFETY PLAN**

**FLY ASH MIXING/ACCUMULATION BINS  
SOIL PIPE PLANT/VALVE AND FITTINGS PLANT  
U.S. PIPE & FOUNDRY COMPANY  
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE  
EPA ID # TND 980 316 301**

**Prepared For:**

**United States Pipe & Foundry Company  
P.O. Box 311  
2701 Chestnut Street  
Chattanooga, Tennessee 37401-0311**

**Prepared By:**

**Ogden Environmental and Energy Services  
1009 Commerce Park Drive  
Suite 100  
Oak Ridge, Tennessee 37830**

**16 November 1992**

**Ogden File No. 0-4227-0100-0001**

FIELD SAMPLING AND ANALYSIS PLAN  
FLY ASH MIXING/ACCUMULATION BINS  
SOIL PIPE PLANT / VALVE AND FITTINGS PLANT  
U.S. PIPE & FOUNDRY COMPANY  
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE  
EPA ID # TND 980 316 301

**1.0 INTRODUCTION**

The regulatory status of the subject waste pile mixing bins has been a subject of negotiation and discussion between United States Pipe & Foundry Company (US Pipe), the State of Tennessee, and the U.S. EPA Region IV. As a result of these discussions, a Consent Agreement and Final Order was signed on 12 December 1990 requiring submittal of a plan of activities to be conducted to determine whether all waste and contaminated materials were removed at the former location of the waste piles. This Field Sampling and Analysis Plan and Site Health and Safety Plan, in conjunction with the Closure Activities Report which was previously submitted, were developed to address the implementation of the plan required in that document.

Since samples will be collected in an alleged hazardous waste area, a Site Health and Safety Plan is required. It is anticipated that site activities can be performed using modified Level C personal protective equipment (PPE) (i.e., tyvek suits, gloves, steel toed boots, boot covers, hard hats, safety glasses and 1/2 face respirators).

**2.0 SITE DESCRIPTION AND SITE HISTORY**

U.S. Pipe has operated two manufacturing units at the subject site, consisting of the Soil Pipe Plant (ceased operation in May 1990) and the Valve and Fittings Plant. Both plants are in close proximity to one another and consist of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. Both

units deposited solid waste into the landfill. One of the solid wastes generated at these facilities is the cupola fly ash collected at the baghouse collectors. Such fly ash is alleged by the U.S. Environmental Protection Agency (U.S. EPA) to be a hazardous waste as defined in section 1004(5) of the Resource Conservation and Recovery Act (RCRA). Various solid wastes, including the baghouse dust and fly ash were blended/mixed on concrete pads prior to being deposited in the landfill. One pad served the Soil Pipe unit and one served the Valve and Fittings unit.

In January, 1989, US Pipe initiated operation of a fly ash fixation system for the treatment of the fly ash from both plants. Subsequently, the bins were closed to the mixing of the cupola fly ash waste. However, the concrete bins continued to be used for mixing of other solid wastes. Discontinuation of these mixing pads for mixing cupola fly ash waste consisted of removing all cupola waste from the mixing pads using front end loaders and utilizing small earth moving equipment.

### **3.0 SAMPLING PLAN**

#### **3.1 Summary of Activity**

The mixing pad that serves the Valve and Fittings unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 30 feet in plan dimensions. No significant cracking or degradation of the pad is present.

The mixing pad which served the Soil Pipe unit is a concrete slab with concrete walls on two sides, approximately 20 feet by 20 feet in plan dimensions. Similarly, this pad also is competent, with no indications of significant degradation.

To confirm the presence, nature, and extent of possible contamination caused by the activities at the mixing bins, six (6) samples will be collected from each of the concrete pads at the approximate locations shown by Figures 3 and 4. Four of the samples will be

collected from sediment/waste remaining on the waste pads, such as at the contact of the vertical walls and floor. Furthermore, two samples will be collected from the gravel surface at the perimeter of the concrete pads.

### **3.2 Sampling and Analyses Rationale**

The sample locations for sediment were selected to determine whether all waste and contaminated materials have been removed at the former location of the Fly Ash Mixing/Accumulation Bins. The analytes in this study were selected based on an evaluation of historical data pertaining to cupola fly ash and baghouse dust that were reported to have been deposited and mixed in the bins.

### **3.3 Potential Contaminants**

Potential contaminants that may be present in the sediment/waste on the concrete pads of the Fly Ash Mixing/Accumulation Bins are cadmium, cyanide, lead, phenols, and toluene.

### **3.4 Sediment Sampling Procedures**

Sediment samples will be collected in six (6) locations surrounding each of the Fly Ash Mixing/Accumulation Bins at the two plants. The samples will be collected at the locations shown on Figures 3 and 4. The samples will be collected using either a stainless steel hand auger or a stainless steel spoon or scoop. The specific type of sampling equipment used, as well as description of the sediment material, will be noted in the sampler's log book. The sample will be placed in four, four-ounce clear wide-mouth glass jars and cooled to 4° C. The containers will be labeled in accordance with section 3.5. The samples will be sent to Analytical Technologies Inc. (ATI) in Pensacola, Florida for analyses. Planned analyses are shown in Table 1.

### **3.5 Sample Labeling**

Samples collected will be labeled using the following nomenclature:

V&F - MM - S##

where V&F = project designation, "V&F" for Valve and Fittings Plant and "SP" for Soil Pipe Plant

MM = Media designation using  
SD - Sediment Sample

S## = Surface location with number designation

Example: SP - SD - S02

Represents a sample from the Soil Pipe mixing bin, sediment media, from sample location number 2.

These sample designations will be used consistently in the geologist's log book, chain of custody forms, and the analytical laboratory's Certificates of Analysis.

### **3.6 Sample Chain of Custody/Shipment**

The sample collector will be responsible for documenting sample collection in their daily log book and completing the Sample Chain-of-Custody form (Figure 2-3). The samples will be packed and sealed, including the form, and delivered to an overnight delivery service.

### **3.7 Equipment Decontamination**

All sampling equipment involved in the sampling activities will be cleaned and decontaminated before entering the designated sampling sites. All sampling equipment that comes into contact with the sample medium will be cleaned and decontaminated using the following procedures:

1. Clean with tap water and laboratory grade, phosphate-free detergent, using a brush, if necessary, to remove particulate matter and surface films.
2. Rinse thoroughly with tap water (potable). Tap water may be applied with a pressurized sprayer.
3. Rinse thoroughly with organic-free water, using a non-interfering container. Non-interfering containers are made of glass, Teflon, or stainless steel with viton seals. No container containing brass or rubber, etc. may be utilized.
4. Rinse twice with solvent (pesticide-grade isopropanol, using a non-interfering container).

### **3.8 Waste Management**

Waste generated during this sampling effort will be minimal and will be drummed and labeled prior to delivery to US Pipe for disposal.

### **4.0 DATA EVALUATION AND REPORT PREPARATION**

Following evaluation of the data collected during this sampling effort, a draft report detailing the findings will be prepared. If necessary, the draft will detail additional data collection activities required to further characterize the nature and extent of contamination resulting from the activities at the mixing/accumulation bins. In the event that results from this sampling effort determines that the waste residue has not been removed from these units, this plan does not include development of post-closure permit application.

### **SCHEDULE**

The proposed schedule for conducting the field sampling, analysis of samples and issuing a summary report is shown by Figure 5.

**Table 1**

U. S. Pipe & Foundry Company  
Proposed Analysis Parameters  
for Soil Samples Collected at the  
Fly Ash Mixing/Accumulation Bins

<u>Parameters</u>	<u>EPA Test Method</u>
Cadmium, TCLP	1311, 6010
Total Cyanide, TCLP	1311, 335.3
Lead, TCLP	1311, 6010
Total Phenols, TCLP	1311
Toluene, TCLP	1311, 8240

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4-79-020, Revised March 1983.

ATILAB. I.D. # \_\_\_\_\_

11 EAST OLIVE ROAD

PHONE (904) 474-1001

PENSACOLA, FLORIDA 32514

[illegible]

## PARAMETERS AND PRESERVATIVES

DW DRINKINGWATER	OL OIL
WW WASTEWATER	AR AIR
GW GROUNDWATER	SL SLUDGE
SW SURFACEWATER	
SO SOIL	

[illegible]

CLIENT \_\_\_\_\_ PROJECT NUMBER \_\_\_\_\_ REQUEST FAX DATA BY \_\_\_\_\_ (FAX #) \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ PROJECT NAME \_\_\_\_\_ REQUEST VERBAL RESULTS BY \_\_\_\_\_ (DATE) \_\_\_\_\_  
 CITY \_\_\_\_\_ SAMPLED BY \_\_\_\_\_ NEED DATA PACKAGE BY \_\_\_\_\_ (DATE) \_\_\_\_\_  
 STATE \_\_\_\_\_ ZIP \_\_\_\_\_ SAMPLE SITE \_\_\_\_\_ QUALITY CONTROL REPORTING LEVEL (circle one) \_\_\_\_\_  
 PHONE NO. (    ) \_\_\_\_\_ PURCHASE ORDER NUMBER \_\_\_\_\_ NONE    1    2    3    4  
 PROJECT MANAGER (person to receive data) \_\_\_\_\_ NEED \_\_\_\_\_ EXTRA COPIES OF REPORT \_\_\_\_\_

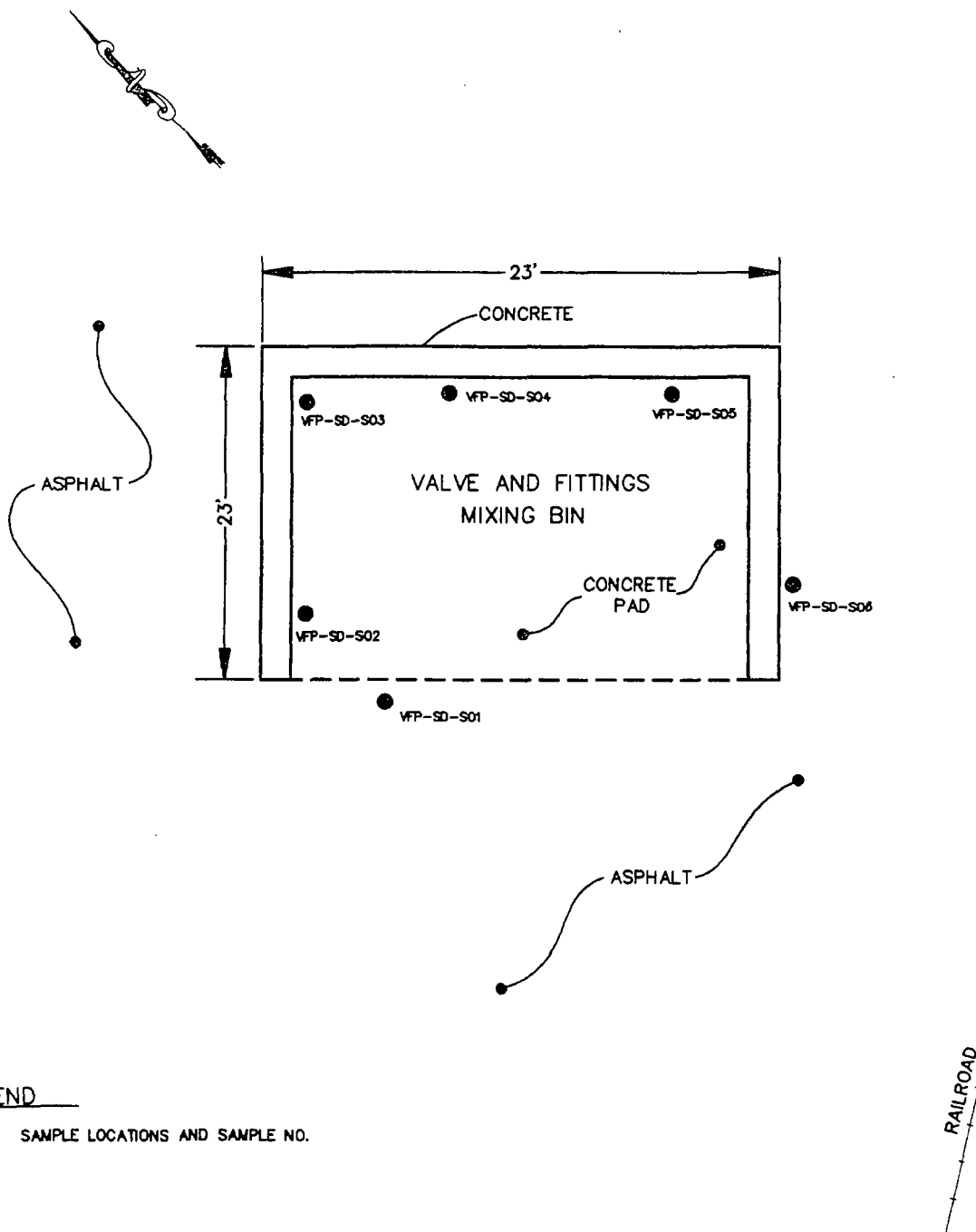
<b>TURN AROUND TIMES</b> (check one)	<b>SPECIAL INSTRUCTIONS:</b>
<b>STANDARD - 14 TO 21 DAYS</b> <input type="checkbox"/>	
<b>RUSH: (MUST BE APPROVED IN ADVANCE)</b>	
<b>0-48 HOURS - 2 x STD PRICE</b> <input type="checkbox"/>	
<b>3-7 DAYS - 1.5 x STD PRICE</b> <input type="checkbox"/>	
<b>TCLP - 1 WEEK RUSH - 1.5 x STD PRICE</b> <input type="checkbox"/>	

FIGURE 2-3  
CHAIN OF CUSTODY FORM  
ASPHALT PAINT RELEASE  
CHATTANOOGA, TENNESSEE  
SOIL GAS STUDY

# OGDEN

515-481-8002

OAK RIDGE, TN 37830



**LEGEND**

● SAMPLE LOCATIONS AND SAMPLE NO.  
VFP-SD-S01

APPROX. SCALE  
1" = 15'

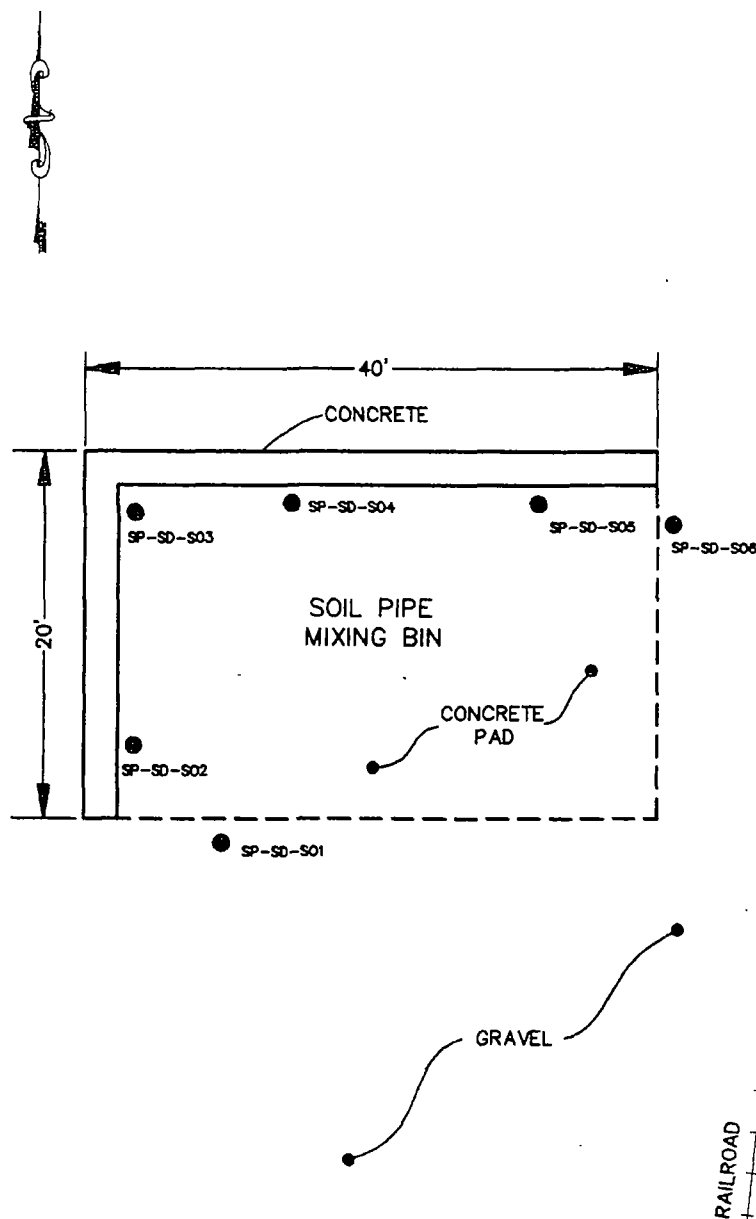
**FIGURE 1**

**OGDEN** ENVIRONMENTAL AND ENERGY SERVICES

1009 COMMERCE PARK DRIVE • OAK RIDGE, TN 37830 • 615-481-8002

**US PIPE AND FOUNDRY  
VALVE AND FITTINGS MIXING SCHEMATIC  
CHATTANOOGA, TENNESSEE**

OGDEN PROJECT # 042270400/0001  
FACILITY ID. # 3-330761



# LEGEND

- SAMPLE LOCATIONS AND SAMPLE NO.  
SP-SD-S01

APPROX. SCALE  
1" = 15'

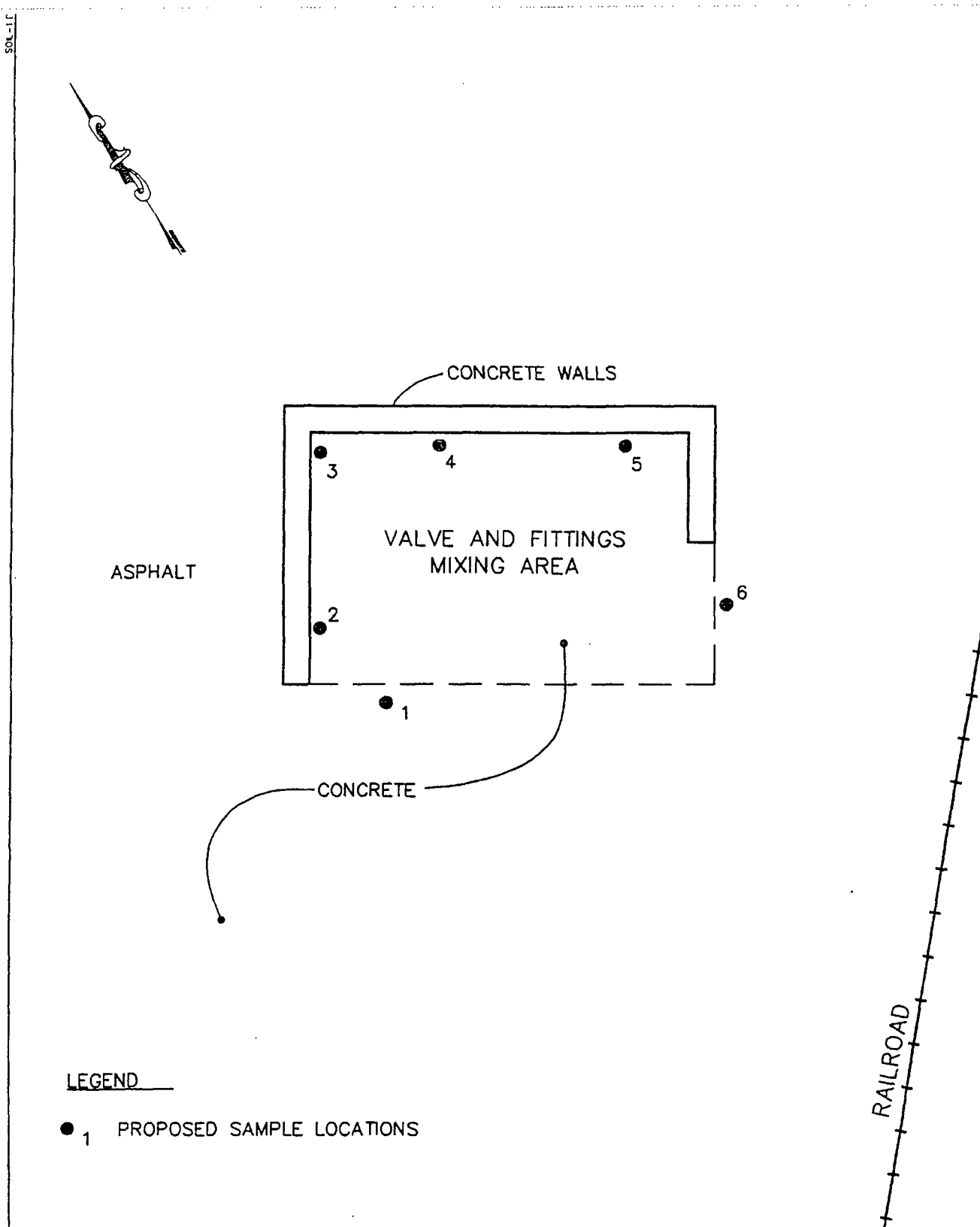
FIGURE 2

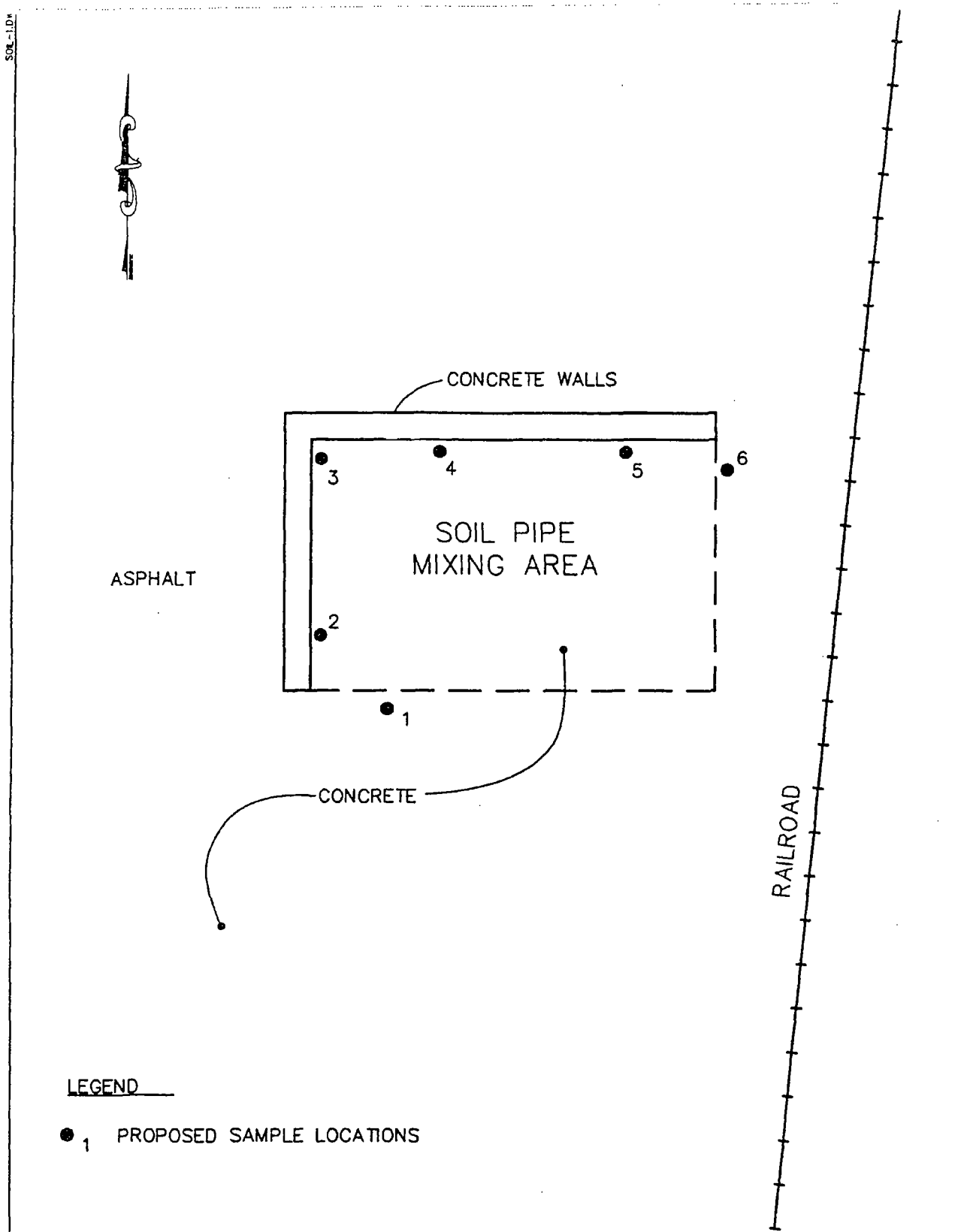
**OGDEN** ENVIRONMENTAL AND ENERGY SERVICES

1009 COMMERCE PARK DRIVE • OAK RIDGE, TN 37830 • 615-491-8002

US PIPE AND FOUNDRY  
SOIL PIPE MIXING SCHEMATIC  
CHATTANOOGA, TENNESSEE

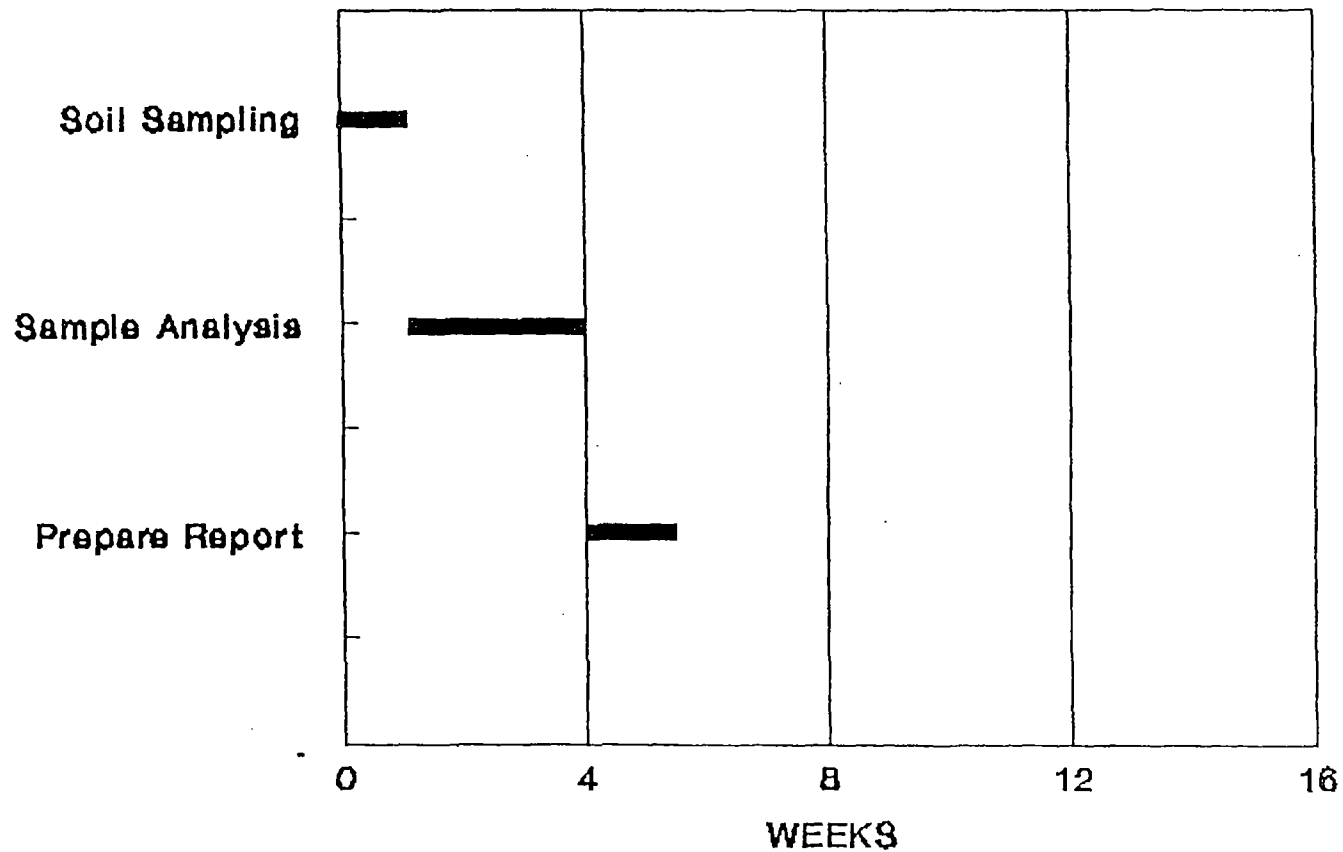
OGDEN PROJECT # 042270400/0001  
FACILITY ID.# 3-330781





**FIGURE 4**  
**US PIPE AND FOUNDRY**  
**SOIL PIPE MIXING AREA**  
**CHATTANOOGA, TENNESSEE**

**Figure 5 - Proposed Schedule  
US Pipe & Foundry Mixing Bins Closure**



**Day 0 starts with approval of Plan.**

## HEALTH & SAFETY PLAN

FLY ASH MIXING/ACCUMULATION BINS  
SOILS PIPE PLANE/VALVE AND FITTINGS PLANT  
SEDIMENT/WASTE SAMPLING PROJECT  
UNITED STATES PIPE & FOUNDRY COMPANY  
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE  
EPA ID # TND 980 316 301

### 1.0 SCOPE AND APPLICABILITY

This document outlines the health and safety procedures to be used during the sampling of sediment/waste that is present on the concrete pads of the Fly Ash Mixing/Accumulation Bins at the United States Pipe & Foundry Company located in Chattanooga, Tennessee. This sampling project is being undertaken by Ogden Environmental and Energy Services Company, Inc. (Ogden), Knoxville, Tennessee.

The personal protective equipment (PPE) and the procedures specified below are based on the best information available from reference documents and site characterization data, and represent the minimum health and safety requirements to be observed by Ogden field personnel engaged in this sampling project. Unforeseeable site conditions or changes in scope of work may warrant a reassessment of protection levels and controls stated.

All personnel involved in this project must read this document carefully. If you have any questions or concerns which you feel are not adequately addressed, ask the Health and Safety Coordinator. Follow the designated health and safety procedures, be alert to the hazards associated with working on any construction site in close proximity to heavy equipment, and above all else, use common sense, and exercise reasonable caution at all times.

## **2.0 REFERENCES**

During the development of these procedures, consideration was given to current safety standards as defined by OSHA, NIOSH, and the U.S. EPA; health effects and standards for known contaminants, and procedures designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

- OSHA 29 CFR 1910.120, 29 CFR 1910 & 1926 and EPA 40 CFR;
- OSHA/NIOSH/EPA/Coast Guard "Occupational Health and Safety Guidelines for Activities at Hazardous Waste Sites";
- NIOSH Pocket Guide to Chemical Hazards; and,
- (ACGIH) Threshold Limit Values 1990-91.

## **3.0 SITE DESCRIPTION AND HISTORY**

For information regarding site descriptions and history, reference the Ogden report, U.S. Pipe & Foundry, Fly Ash Mixing/Accumulation Bins Closure Activities, Chattanooga, Tennessee, dated 8 January 1991.

## **4.0 ENTRY OBJECTIVES**

The objective of this project is to obtain sediment/waste samples for chemical analysis as outlined in the project workplan.

## **5.0 ANTICIPATED PERSONNEL**

Ogden Field Technician (Geologist).  
Field Sampling Technician.

## **6.0 OVERALL HAZARD LEVEL**

Only small amounts of contaminants are suspected of being present on the site and personnel exposures are expected to be minimal. However, the overall exposure hazard level posed by the sampling activities is considered moderate. This determination is based on the potential adverse health effects associated with exposures to the contaminants that may be present.

## **7.0 CHEMICAL HAZARDS**

The primary hazards of concern are from contaminants which are suspected of being in the sediment/waste present on the concrete pads of the Fly Ash Mixing/Accumulation Bins. Based on available information, the primary potential hazards are from cadmium, cyanide, iron, lead, phenols, and toluene. These substances are associated with process wastes such as cupola fly ash and baghouse dust that were reported to have been deposited and mixed in the bins.

## **8.0 CHARACTERIZATION OF CHEMICAL CONTAMINANTS**

Exposures to these substances could produce acute (short term) health effects and/or chronic (long term) health effects. Symptoms of acute exposure could include skin, eye and respiratory tract irritation to visual disturbances, headache, fatigue, nausea, mental confusion and incoordination, dependent upon concentration. Chronic exposure could cause damage to the liver, kidneys, and other target organs. Exposure to these substances can also affect the central nervous system, the cardiovascular system, and/or the blood. Cadmium is also considered a suspected carcinogen.

## **9.0 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENT**

Modified Level C personal protection will be used during sampling activities. A summation of Modified Level C personal protection is as follows:

- a. Half-face respirator with combination OV/HEPA Cartridges
- b. Disposable Coveralls (Tyvek)
- c. Chemical resistant gloves
- d. Hard hat
- e. Safety glasses or goggles
- f. Steel-toe shoes
- g. Disposable Boot Covers

## **10.0 DECONTAMINATION PROCEDURES**

The purpose of decontamination is to prevent contaminants that may be present on protective clothing and equipment from coming in contact with personnel. Also, decontamination protects workers from hazardous substances that may contaminate and eventually permeate the PPE used; it protects personnel by minimizing the transfer of harmful materials into clean areas. Decontamination consists of physically removing contaminants or changing their chemical nature to innocuous substances. Allowances must be made for the type of protective equipment being worn, e.g., non-disposable, steel toe shoes need not be removed if properly decontaminated.

The purpose of equipment decontamination is to prevent exposure to personnel during loading, transporting, and unloading at another site. It is also to prevent off site migration of contaminants from one site to another or during transporting the equipment.

### **10.1 Personnel Decontamination**

Removal of loose mud or other substrate from personnel and equipment will be performed before leaving each sampling site. Personnel will remove and deposit any disposable PPE in marked containers before leaving the sampling site. Personnel shall thoroughly wash their hands and face before leaving the area. Disposable PPE and decontamination waste water will be containerized and delivered to U.S. Pipe and Foundry for proper disposal.

### **10.2 EQUIPMENT DECONTAMINATION**

The Ogden Field Specialist will be responsible to ensure that all equipment is properly decontaminated and checked prior to coming offsite. Reasonable efforts should be made to remove contamination by wiping, brushing or washing surfaces. Rinsates must be contained and collected for proper disposal. At a minimum, all visual indication of contamination shall be removed. Equipment should be reasonably clean, dry, unstained, free from deposits, encrustations, or discoloration.

### **11.0 DISPOSAL OF MATERIALS GENERATED DURING FIELD WORK**

- Materials generated during field work (decontamination solutions, disposable protective gear, rags, etc.) will be considered as contaminated and handled accordingly.
- Only lined container pits, drums, and containers meeting the appropriate DOT, OSHA, and EPA regulations for waste contents will be used.
- Containerized waste will be delivered to U.S. Pipe and Foundry for proper disposal.

## 12.0 SIGNATURE SHEET

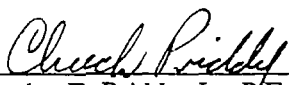
Ogden employees or representatives involved with this project must review this Site Safety and Health Plan and sign below.

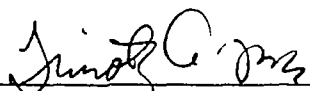
I understand and will comply with the attached Site Safety and Health Procedures.


<u>Name (print)</u>	<u>Employer</u>	<u>Date</u>	<u>Signature</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

### 13.0 DOCUMENT APPROVAL

These Site Health and Safety Procedures have been written for the use of Ogden's employees on this project. Ogden claims no responsibility for its use by others. The plan is written for specific site conditions, purposes, dates and personnel specified and must be amended if these conditions change.

  
Charles F. Priddy, Jr., P.E.  
Ogden Project Manager

  
Tim Lee  
Ogden Project Geologist

  
Roberto Chavarria  
Ogden Health & Safety Coordinator

## **APPENDIX II**

### **LABORATORY REPORTS**



Environmental Sciences



MWPS002177



Analytical Technologies, Inc. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

OGDEN-OAK RIDGE  
1009 COMMERCE PARK DRIVE  
SUITE 100  
OAK RIDGE TN 37830-0000

Lab I.D.#: 92-9834  
Order Number: P66252  
Received Date: 11/27/92  
Client: 05140  
Sampled By: LEE/N.  
Sample Date: 11/24/92  
Sample Time: PM

Project Number: 0-4227-0100-0001  
Project Name: U S PIPE  
Sample Site: U S PIPE/CHATT.  
Sample Type: SOIL

N/S = Not Submitted

Lab ID	Sample ID	Parameter	Units	Results	Detection Limit
9834-1	VFP-SD-S01	CADMIUM, TCLP	PPM	BDL	0.1
9834-2	VFP-SD-S02	CADMIUM, TCLP	PPM	BDL	0.1
9834-3	VFP-SD-S03	CADMIUM, TCLP	PPM	BDL	0.1
9834-4	VFP-SD-S04	CADMIUM, TCLP	PPM	BDL	0.1
9834-5	VFP-SD-S05	CADMIUM, TCLP	PPM	BDL	0.1
9834-6	VFP-SD-S06	CADMIUM, TCLP	PPM	BDL	0.1
9834-7	SP-SD-S01	CADMIUM, TCLP	PPM	BDL	0.1
9834-8	SP-SD-S02	CADMIUM, TCLP	PPM	0.2	0.1
9834-9	SP-SD-S03	CADMIUM, TCLP	PPM	0.1	0.1
9834-10	SP-SD-S04	CADMIUM, TCLP	PPM	0.2	0.1
9834-11	SP-SD-S05	CADMIUM, TCLP	PPM	0.7	0.1
9834-12	SP-SD-S06	CADMIUM, TCLP	PPM	BDL	0.1
9834-1	VFP-SD-S01	LEAD, TCLP	PPM	BDL	0.5
9834-2	VFP-SD-S02	LEAD, TCLP	PPM	BDL	0.5
9834-3	VFP-SD-S03	LEAD, TCLP	PPM	BDL	0.5
9834-4	VFP-SD-S04	LEAD, TCLP	PPM	BDL	0.5
9834-5	VFP-SD-S05	LEAD, TCLP	PPM	BDL	0.5
9834-6	VFP-SD-S06	LEAD, TCLP	PPM	BDL	0.5
9834-7	SP-SD-S01	LEAD, TCLP	PPM	BDL	0.5
9834-8	SP-SD-S02	LEAD, TCLP	PPM	4.5	0.5
9834-9	SP-SD-S03	LEAD, TCLP	PPM	1.5	0.5
9834-10	SP-SD-S04	LEAD, TCLP	PPM	1.0	0.5
9834-11	SP-SD-S05	LEAD, TCLP	PPM	BDL	0.5
9834-12	SP-SD-S06	LEAD, TCLP	PPM	BDL	0.5
9834-1	VFP-SD-S01	TCLP, PHENOL	PPM	0.38	0.05+
9834-2	VFP-SD-S02	TCLP, PHENOL	PPM	0.39	0.05+
9834-3	VFP-SD-S03	TCLP, PHENOL	PPM	0.16	0.05+
9834-4	VFP-SD-S04	TCLP, PHENOL	PPM	4.9	0.25+
9834-5	VFP-SD-S05	TCLP, PHENOL	PPM	0.014	0.005
9834-6	VFP-SD-S06	TCLP, PHENOL	PPM	4.9	0.25+
9834-7	SP-SD-S01	TCLP, PHENOL	PPM	0.016	0.005

Comments: PPM = Parts Per Million, mg/l. PPB = Parts Per Billion, ug/l.

Meth. Ref: SW-846, 3rd Ed. 11/86. BDL = Below Detection Limit. +Elevated detection limit due to dilution into calibration range.

page

Approved By :

*Peter Shuba*

1

MWPS002178



Client: OGDEN-OAK RIDGE

Lab I.D.#: 92-9834

Project Number: 0-4227-0100-0001

Received Date: 11/27/92

Project Name: U S PIPE

Sampled By: LEE/N.

Sample Site: U S PIPE/CHATT.

Sample Type: SOIL

Single Tests continued

Sample Date: 11/24/92 Time: PM

Lab ID	Sample ID	Parameter	Units	Results	Detection Limit
9834-8	SP-SD-S02	TCLP, PHENOL	PPM	0.008	0.005
9834-9	SP-SD-S03	TCLP, PHENOL	PPM	0.006	0.005
9834-10	SP-SD-S04	TCLP, PHENOL	PPM	0.006	0.005
9834-11	SP-SD-S05	TCLP, PHENOL	PPM	0.012	0.005
9834-12	SP-SD-S06	TCLP, PHENOL	PPM	0.008	0.005
9834-1	VFP-SD-S01	TOLUENE	PPB	5	5
9834-2	VFP-SD-S02	TOLUENE	PPB	14	5
9834-3	VFP-SD-S03	TOLUENE	PPB	BDL	5
9834-4	VFP-SD-S04	TOLUENE	PPB	27	5
9834-5	VFP-SD-S05	TOLUENE	PPB	BDL	5
9834-6	VFP-SD-S06	TOLUENE	PPB	13	5
9834-7	SP-SD-S01	TOLUENE	PPB	25	5
9834-8	SP-SD-S02	TOLUENE	PPB	BDL	5
9834-9	SP-SD-S03	TOLUENE	PPB	BDL	5
9834-10	SP-SD-S04	TOLUENE	PPB	BDL	5
9834-11	SP-SD-S05	TOLUENE	PPB	BDL	5
9834-12	SP-SD-S06	TOLUENE	PPB	BDL	5



Analytical**Technologies**, Inc. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

Q U A L I T Y   C O N T R O L  
D A T A

INORGANICS

CLIENT NAME: OGDEN-OAK RIDGE

PROJECT: 0-4227-0100-0001

LAB ID: 92-9834

QC LEVEL: II

<u>LAB ID</u>	<u>CLIENT ID</u>
92-9834-1	VFP-SD-S01
92-9834-2	VFP-SD-S02
92-9834-3	VFP-SD-S03
92-9834-4	VFP-SD-S04
92-9834-5	VFP-SD-S05
92-9834-6	VFP-SD-S06
92-9834-7	SP-SD-S01
92-9834-8	SP-SD-S02
92-9834-9	SP-SD-S03
92-9834-10	SP-SD-S04
92-9834-11	SP-SD-S05
92-9834-12	SP-SD-S06

Notes: PPM = Parts Per Million, mg/l.

BDL = Below Detection Limit.

Control limits are from ATI's internal quality assurance program and the referenced method.

See final report for actual sample detection limit(s).

Reference: SW-846, 3rd Edition, November 1986.

MMPS002181



Analytical Technologies, Inc.

11 EAST OLIVE ROAD

PHONE (904) 474-1001

PENSACOLA, FLORIDA 32514

LAB ID: 92-9834

PAGE 1 OF 1

PARAMETER	PREPARATION DATE	ANALYSIS DATE	BATCH#	METHOD	BLANK DETECTION LIMIT	BLANK RESULT	DUPLIC SAMPLE RESULT	DUPLIC RESULT	RPD SAMPLE	MAX RPD	SAMPLE RESULT	SPIKED SAMPLE RESULT	SPIKE ADDED	%REC MS	%REC CONTROL LIMITS
PHEN-TCLP	12-03-92	12-03-92	PHEN-43	9065	0.005	BDL	BDL	BDL	N/C	.006#	BDL	0.030	0.022	136	64-144

PARAMETER	ICV RESULT	TRUE ICV RESULT	%REC QC	%REC CONTROL LIMITS	LCS RESULT	TRUE LCS RESULT	LCS %REC	LCS CONTROL LIMITS	SAMPLE DUPLIC	SAMPLE DUP DETECTION LIMIT	SAMPLE SPIKED	SAMPLE SPK DETECTION LIMIT
PHEN-TCLP	0.032	0.031	103	90-110	N/A	N/A	N/A	N/A	9704-1	0.006#	9761A-1	0.006#

MWPS002182



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11 EAST OLIVE ROAD  
PENSACOLA, FLORIDA 32514

PHONE (904) 474-1001

#### EXPLANATION OF INORGANIC FOOTNOTES

N/A = NOT APPLICABLE.  
N/S = NOT SUBMITTED.  
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI METHOD DETECTION LIMIT;  
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.  
N/D = NOT DETECTED.  
DISS. OR D = DISSOLVED  
T & D = TOTAL AND DISSOLVED  
R = REACTIVE  
T = TOTAL  
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI METHOD DETECTION LIMIT AND THE ABSOLUTE  
DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW ATI METHOD DETECTION  
LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".  
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO FAILURE OF THE MATRIX  
(PRE-DIGESTION) SPIKE.  
# = ELEVATED DETECTION LIMIT DUE TO INSUFFICIENT SAMPLE.  
+ = ELEVATED DETECTION LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.  
\* = ELEVATED DETECTION LIMIT DUE TO MATRIX INTERFERENCE.  
@ = ADJUSTED DETECTION LIMIT DUE TO SAMPLE MATRIX.  
P = ANALYTICAL (POST-DIGESTION) SPIKE  
I = DUPLICATE INJECTION  
& = AUTOMATED  
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.  
N/C+ = NOT CALCULABLE  
N/C\* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.  
H = SAMPLE AND/OR DUPLICATE IS BELOW 5 X ATI METHOD DETECTION LIMIT AND THE ABSOLUTE  
DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI METHOD DETECTION LIMIT; THEREFORE,  
THE RESULTS ARE "OUT OF CONTROL"; SAMPLE IS NON-HOMOGENEOUS.  
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL"; SAMPLE IS NON-HOMOGENEOUS.  
Z = ELEVATED DETECTION LIMIT - HISTORICAL BOD DATA NOT AVAILABLE TO SELECT  
PROPER SAMPLE DILUTIONS.



Analytical Technologies, Inc.  
11 EAST OLIVE ROAD  
PENSACOLA, FLORIDA 32514

PHONE (904) 474-1001

# INORGANICS

CLIENT NAME: OGDEN-OAK RIDGE  
PROJECT: 0-4227-0100-0001  
LAB ID: 92-9834  
QC LEVEL: II

<u>LAB ID</u>	<u>CLIENT ID</u>
92-9834-1	VFP-SD-S01
92-9834-2	VFP-SD-S02
92-9834-3	VFP-SD-S03
92-9834-4	VFP-SD-S04
92-9834-5	VFP-SD-S05
92-9834-6	VFP-SD-S06
92-9834-7	SP-SD-S01
92-9834-8	SP-SD-S02
92-9834-9	SP-SD-S03
92-9834-10	SP-SD-S04
92-9834-11	SP-SD-S05
92-9834-12	SP-SD-S06

Notes: PPM = Parts Per Million, mg/l.  
BDL = Below Detection Limit.

Control limits are from ATI's internal quality assurance program and the referenced method.  
See final report for actual sample detection limit(s).

Reference: SW-846, 3rd Edition, November 1986.

MWPS002184



Analytical Technologies, Inc.

11 EAST OLIVE ROAD

PHONE (904) 474-1001

PENSACOLA, FLORIDA 32514

LAB ID: 92-9834

PAGE 1 OF 1

PARAMETER	PREPARATION DATE	ANALYSIS DATE	BATCH#	METHOD	BLANK DETECTION LIMIT	BLANK RESULT	DUPLIC SAMPLE RESULT	DUPLIC RESULT	RPD SAMPLE	MAX RPD	SAMPLE RESULT	SPIKED SAMPLE RESULT	SPIKE ADDED	%REC MS	%REC CONTROL LIMITS
Cd, TCLP	12-04-92	12-04-92	CdD0492A	6010	0.1	BDL	BDL	BDL	N/C	0.1	BDL	1.0	1.0	100	75-125
Pb, TCLP	12-04-92	12-04-92	PbD0492A	6010	0.5	BDL	BDL	BDL	N/C	0.5	BDL	1.0	1.0	100	75-125

PARAMETER	ICV RESULT	TRUE ICV RESULT	%REC QC	%REC CONTROL LIMITS	LCS RESULT	TRUE LCS RESULT	LCS %REC	LCS CONTROL LIMITS	SAMPLE DUPLIC	SAMPLE DUP DETECTION LIMIT	SAMPLE SPIKED	SAMPLE SPK DETECTION LIMIT
Cd, TCLP	4.6	5.0	92	90-110	4.7	5.0	94	80-120	9834-4	0.1	9834-4	0.1
Pb, TCLP	4.5	5.0	90	90-110	4.6	5.0	92	80-120	9834-4	0.5	9834-4	0.5

MM/PS002185



Analytical Technologies, Inc.  
11 EAST OLIVE ROAD  
PENSACOLA, FLORIDA 32514

PHONE (904) 474-1001

#### EXPLANATION OF INORGANIC FOOTNOTES

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N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI METHOD DETECTION LIMIT;  
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.

N/D = NOT DETECTED.

DISS. OR D = DISSOLVED

T & D = TOTAL AND DISSOLVED

R = REACTIVE

T = TOTAL

G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI METHOD DETECTION LIMIT AND THE ABSOLUTE  
DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW ATI METHOD DETECTION  
LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".

Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO FAILURE OF THE MATRIX  
(PRE-DIGESTION) SPIKE.

# = ELEVATED DETECTION LIMIT DUE TO INSUFFICIENT SAMPLE.

+ = ELEVATED DETECTION LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.

\* = ELEVATED DETECTION LIMIT DUE TO MATRIX INTERFERENCE.

@ = ADJUSTED DETECTION LIMIT DUE TO SAMPLE MATRIX.

P = ANALYTICAL (POST-DIGESTION) SPIKE

I = DUPLICATE INJECTION

& = AUTOMATED

F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.

N/C+ = NOT CALCULABLE

N/C\* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.

H = SAMPLE AND/OR DUPLICATE IS BELOW 5 X ATI METHOD DETECTION LIMIT AND THE ABSOLUTE  
DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI METHOD DETECTION LIMIT; THEREFORE,  
THE RESULTS ARE "OUT OF CONTROL"; SAMPLE IS NON-HOMOGENEOUS.

A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL"; SAMPLE IS NON-HOMOGENEOUS.

Z = ELEVATED DETECTION LIMIT - HISTORICAL BOD DATA NOT AVAILABLE TO SELECT  
PROPER SAMPLE DILUTIONS.



Analytical Technologies, Inc.

11 East Olive Road

Pensacola, Florida 32514

(904) 474-1001

CLIENT: OGDEN-OAK RIDGE

PROJECT: 0-4277-0100-0001

LAB ID: 92-9834

METHOD: TCLP / 8240 / SW 846, 3rd Edition, November 1986

QC LEVEL: II

LAB ID:	CLIENT ID:	DATE SAMPLED	DATE RECEIVED	DATE EXTRACTED	DATE ANALYZED	QC BATCH	QC BLANK
92-9834-1	VFP-SD-S01	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-2	VFP-SD-S02	11-24-92	11-27-92	12-02-92	12-02-92	NT0129	B
92-9834-3	VFP-SD-S03	11-24-92	11-27-92	12-02-92	12-02-92	NT0129	B
92-9834-4	VFP-SD-S04	11-24-92	11-27-92	12-02-92	12-02-92	NT0129	B
92-9834-5	VFP-SD-S05	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-6	VFP-SD-S06	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-7	SP-SD-S01	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-8	SP-SD-S02	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-9	SP-SD-S03	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-10	SP-SD-S04	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-11	SP-SD-S05	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A
92-9834-12	SP-SD-S06	11-24-92	11-27-92	12-02-92	12-07-92	NT0130	A

MWPS002187



METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0130

PARAMETERS	BLANK A		BLANK B	
	EXTRACTION DATE	12-02-92	12-04-92	
	ANALYSIS DATE	12-07-92	12-07-92	
	DETECTION LIMIT	RESULTS	RESULTS	
ACETONE	10	BDL	BDL	
ACROLEIN	100	BDL	BDL	
ACRYLONITRILE	100	BDL	BDL	
BENZENE	1	BDL	BDL	
BROMODICHLOROMETHANE	1	BDL	BDL	
BROMOFORM	2	BDL	BDL	
BROMOMETHANE	1	BDL	BDL	
2-BUTANONE (MEK)	3	BDL	BDL	
CARBON DISULFIDE	1	BDL	BDL	
CARBON TETRACHLORIDE	2	BDL	BDL	
CHLOROBENZENE	1	BDL	BDL	
CHLOROETHANE	1	BDL	BDL	
2-CHLOROETHYL VINYL ETHER	5	BDL	BDL	
CHLOROFORM	2	BDL	BDL	
CHLOROMETHANE	2	BDL	BDL	
DIBROMOCHLOROMETHANE	5	BDL	BDL	
DIBROMOMETHANE	5	BDL	BDL	
DICHLORODIFLUOROMETHANE	5	BDL	BDL	
1,1-DICHLOROETHANE	1	BDL	BDL	
1,2-DICHLOROETHANE	2	BDL	BDL	
1,1-DICHLOROETHENE	1	BDL	BDL	
TOTAL 1,2-DICHLOROETHYLENE	5	BDL	BDL	
1,2-DICHLOROPROPANE	2	BDL	BDL	
CIS-1,3-DICHLOROPROPENE	1	BDL	BDL	
TRANS-1,3-DICHLOROPROPENE	1	BDL	BDL	
1,4-DICHLORO-2-BUTENE	5	BDL	BDL	
ETHANOL	50	BDL	BDL	
ETHYL BENZENE	1	BDL	BDL	
ETHYL METHACRYLATE	5	BDL	BDL	
2-HEXANONE	3	BDL	BDL	
IODOMETHANE	5	BDL	BDL	
METHYLENE CHLORIDE	5	BDL	BDL	
4-METHYL-2-PENTANONE	3	BDL	BDL	
STYRENE	2	BDL	BDL	

NOTE: Units in ug/l = Part Per Billion.  
BDL = Below Detection limit.  
Source for control limits is internal laboratory quality assurance program and the method reference.  
N/S = NOT SUBMITTED N/A = NOT APPLICABLE



## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0130

PARAMETERS	BLANK A		BLANK B	
	EXTRACTION DATE	12-02-92	12-04-92	
	ANALYSIS DATE	12-07-92	12-07-92	
	DETECTION LIMIT	RESULTS	RESULTS	
1,1,2,2-TETRACHLOROETHANE	2	BDL	BDL	
TETRACHLOROETHENE	1	BDL	BDL	
TOLUENE	5	BDL	BDL	
1,1,1-TRICHLOROETHANE	5	BDL	BDL	
1,1,2-TRICHLOROETHANE	2	BDL	BDL	
TRICHLOROETHENE	1	BDL	BDL	
TRICHLOROFLUOROMETHANE	1	BDL	BDL	
1,2,3-TRICHLOROPROPANE	5	BDL	BDL	
VINYL ACETATE	2	BDL	BDL	
VINYL CHLORIDE	1	BDL	BDL	
METHYL TERT-BUTYL ETHER	10	BDL	BDL	
XYLENES	4	BDL	BDL	
1,3-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROBENZENE	5	BDL	BDL	
1,4-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROETHANE - D4	(87-106)	97	93	
TOLUENE - D8	(91-108)	101	102	
BROMOFLUOROBENZENE	(93-107)	103	103	

## NOTE:

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N/A = NOT APPLICABLE



Analytical Technologies, Inc.

11 East Olive Road

Pensacola, Florida 32514

(904) 474-1001

## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0130

PARAMETERS	DETECTION LIMIT	BLANK C		BLANK D	
		EXTRACTION DATE		N/A	
		ANALYSIS DATE		12-08-92	
		RESULTS		RESULTS	
ACETONE	10	BDL		BDL	
ACROLEIN	100	BDL		BDL	
ACRYLONITRILE	100	BDL		BDL	
BENZENE	1	BDL		BDL	
BROMODICHLOROMETHANE	1	BDL		BDL	
BROMOFORM	2	BDL		BDL	
BROMOMETHANE	1	BDL		BDL	
2-BUTANONE (MEK)	3	BDL		BDL	
CARBON DISULFIDE	1	BDL		BDL	
CARBON TETRACHLORIDE	2	BDL		BDL	
CHLOROBENZENE	1	BDL		BDL	
CHLOROETHANE	1	BDL		BDL	
2-CHLOROETHYL VINYL ETHER	5	BDL		BDL	
CHLOROFORM	2	BDL		BDL	
CHLOROMETHANE	2	BDL		BDL	
DIBROMOCHLOROMETHANE	5	BDL		BDL	
DIBROMOMETHANE	5	BDL		BDL	
DICHLORODIFLUOROMETHANE	5	BDL		BDL	
1,1-DICHLOROETHANE	1	BDL		BDL	
1,2-DICHLOROETHANE	2	BDL		BDL	
1,1-DICHLOROETHENE	1	BDL		BDL	
TOTAL 1,2-DICHLOROETHYLENE	5	BDL		BDL	
1,2-DICHLOROPROPANE	2	BDL		BDL	
CIS-1,3-DICHLOROPROPENE	1	BDL		BDL	
TRANS-1,3-DICHLOROPROPENE	1	BDL		BDL	
1,4-DICHLORO-2-BUTENE	5	BDL		BDL	
ETHANOL	50	BDL		BDL	
ETHYL BENZENE	1	BDL		BDL	
ETHYL METHACRYLATE	5	BDL		BDL	
2-HEXANONE	3	BDL		BDL	
IODOMETHANE	5	BDL		BDL	
METHYLENE CHLORIDE	5	BDL		BDL	
4-METHYL-2-PENTANONE	3	BDL		BDL	
STYRENE	2	BDL		BDL	

## NOTE:

Units in ug/l = Part Per Billion.

BDL = Below Detection limit.

Source for control limits is internal laboratory quality assurance program and the method reference.

N/S = NOT SUBMITTED

N/A = NOT APPLICABLE



METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0130

PARAMETERS	BLANK C		BLANK D	
	EXTRACTION DATE	12-05-92	N/A	
	ANALYSIS DATE	12-07-92	12-08-92	
	DETECTION LIMIT	RESULTS	RESULTS	
1,1,2,2-TETRACHLOROETHANE	2	BDL	BDL	
TETRACHLOROETHENE	1	BDL	BDL	
TOLUENE	5	BDL	BDL	
1,1,1-TRICHLOROETHANE	5	BDL	BDL	
1,1,2-TRICHLOROETHANE	2	BDL	BDL	
TRICHLOROETHENE	1	BDL	BDL	
TRICHLOROFLUOROMETHANE	1	BDL	BDL	
1,2,3-TRICHLOROPROPANE	5	BDL	BDL	
VINYL ACETATE	2	BDL	BDL	
VINYL CHLORIDE	1	BDL	BDL	
METHYL TERT-BUTYL ETHER	10	BDL	BDL	
XYLENES	4	BDL	BDL	
1,3-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROBENZENE	5	BDL	BDL	
1,4-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROETHANE - D4	(76-114)	95	99	
TOLUENE - D8	(88-110)	101	104	
BROMOFLUOROBENZENE	(86-115)	101	99	

NOTE: Units in ug/l = Part Per Billion.  
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program and the method reference.  
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## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0130

PARAMETERS	BLANK E		BLANK F	
	EXTRACTION DATE	12-08-92	N/A	
	ANALYSIS DATE	12-08-92	N/A	
	DETECTION LIMIT	RESULTS	RESULTS	
ACETONE	10	BDL	BDL	
ACROLEIN	100	BDL	BDL	
ACRYLONITRILE	100	BDL	BDL	
BENZENE	1	BDL	BDL	
BROMODICHLOROMETHANE	1	BDL	BDL	
BROMOFORM	2	BDL	BDL	
BROMOMETHANE	1	BDL	BDL	
2-BUTANONE (MEK)	3	BDL	BDL	
CARBON DISULFIDE	1	BDL	BDL	
CARBON TETRACHLORIDE	2	BDL	BDL	
CHLOROBENZENE	1	BDL	BDL	
CHLOROETHANE	1	BDL	BDL	
2-CHLOROETHYL VINYL ETHER	5	BDL	BDL	
CHLOROFORM	2	BDL	BDL	
CHLOROMETHANE	2	BDL	BDL	
DIBROMOCHLOROMETHANE	5	BDL	BDL	
DIBROMOMETHANE	5	BDL	BDL	
DICHLORODIFLUOROMETHANE	5	BDL	BDL	
1,1-DICHLOROETHANE	1	BDL	BDL	
1,2-DICHLOROETHANE	2	BDL	BDL	
1,1-DICHLOROETHENE	1	BDL	BDL	
TOTAL 1,2-DICHLOROETHYLENE	5	BDL	BDL	
1,2-DICHLOROPROPANE	2	BDL	BDL	
CIS-1,3-DICHLOROPROPENE	1	BDL	BDL	
TRANS-1,3-DICHLOROPROPENE	1	BDL	BDL	
1,4-DICHLORO-2-BUTENE	5	BDL	BDL	
ETHANOL	50	BDL	BDL	
ETHYL BENZENE	1	BDL	BDL	
ETHYL METHACRYLATE	5	BDL	BDL	
2-HEXANONE	3	BDL	BDL	
IODOMETHANE	5	BDL	BDL	
METHYLENE CHLORIDE	5	BDL	BDL	
4-METHYL-2-PENTANONE	3	BDL	BDL	
STYRENE	2	BDL	BDL	

## NOTE:

Units in ug/l = Part Per Billion.

BDL = Below Detection limit.

Source for control limits is internal laboratory quality assurance program and the method reference.

N/S = NOT SUBMITTED

N/A = NOT APPLICABLE



## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0130

PARAMETERS	BLANK E		BLANK F	
	EXTRACTION DATE	12-08-92	N/A	
	ANALYSIS DATE	12-08-92	N/A	
	DETECTION LIMIT	RESULTS	RESULTS	
1,1,2,2-TETRACHLOROETHANE	2	BDL	BDL	
TETRACHLOROETHENE	1	BDL	BDL	
TOLUENE	5	BDL	BDL	
1,1,1-TRICHLOROETHANE	5	BDL	BDL	
1,1,2-TRICHLOROETHANE	2	BDL	BDL	
TRICHLOROETHENE	1	BDL	BDL	
TRICHLOROFLUOROMETHANE	1	BDL	BDL	
1,2,3-TRICHLOROPROPANE	5	BDL	BDL	
VINYL ACETATE	2	BDL	BDL	
VINYL CHLORIDE	1	BDL	BDL	
METHYL TERT-BUTYL ETHER	10	BDL	BDL	
XYLENES	4	BDL	BDL	
1,3-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROBENZENE	5	BDL	BDL	
1,4-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROETHANE - D4	*SURR*(76-114)	92	N/A	
TOLUENE - D8	*SURR*(88-110)	101	N/A	
BROMOFLUOROBENZENE	*SURR*(86-115)	99	N/A	

## NOTE:

Units in ug/l = Part Per Billion.

BDL = Below Detection limit.

Source for control limits is internal laboratory quality assurance program and the method reference.

N/S = NOT SUBMITTED

N/A = NOT APPLICABLE



WATER MATRIX SPIKE

BATCH NUMBER: NT0130

SAMPLE SPIKED: 92-9834-11

COMPOUNDS	SPIKE ADDED	SAMPLE CONC	MS CONC	MS REC%#	REC LIMITS
1,1-DICHLOROETHENE	50	BDL	53	106	76-120
TRICHLOROETHENE	50	BDL	46	92	86-104
BENZENE	50	BDL	48	96	92-104
TOLUENE	50	BDL	50	100	84-114
CHLOROBENZENE	50	BDL	46	92	88-111

COMPOUNDS	SPIKE ADDED	SAMPLE CONC	MSD CONC	MSD REC%#	RPD#	QC LIMITS	
						RPD	REC
1,1-DICHLOROETHENE	50	BDL	51	102	4	14	76-120
TRICHLOROETHENE	50	BDL	46	92	0	14	86-104
BENZENE	50	BDL	48	96	0	11	92-104
TOLUENE	50	BDL	48	96	4	13	84-114
CHLOROBENZENE	50	BDL	46	92	0	13	88-111

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

0 out of 10 % recoveries out of limits  
0 out of 6 surrogate recoveries out of limits  
0 out of 5 RPD's out of limits

ITEM ID:	ANALYSIS DATE	SURROGATE RECOVERY		
		S1	S2	S3
MS	12-08-92	97 %	101%	102%
MSD	12-08-92	100%	100%	98 %

D = DILUTED OUT

NOTE: Units in ug/l = Parts Per Billion.  
BDL = Below Detection Limit.  
Source for control limits is internal laboratory quality assurance program and method reference.

QC LIMITS  
S1 = 1,2-DICHLOROETHANE - D4 (87-106)  
S2 = TOLUENE - D8 (91-108)  
S3 = BROMOFLUOROBENZENE (93-107)

COMMENTS:



## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0129

PARAMETERS	DETECTION LIMIT	BLANK A		BLANK B	
		EXTRACTION DATE	N/A	12-02-92	12-02-92
		ANALYSIS DATE	12-02-92	12-02-92	12-02-92
			RESULTS	RESULTS	
ACETONE	10		BDL	BDL	
ACROLEIN	100		BDL	BDL	
ACRYLONITRILE	100		BDL	BDL	
BENZENE	1		BDL	BDL	
BROMODICHLOROMETHANE	1		BDL	BDL	
BROMOFORM	2		BDL	BDL	
BROMOMETHANE	1		BDL	BDL	
2-BUTANONE (MEK)	3		BDL	BDL	
CARBON DISULFIDE	1		BDL	BDL	
CARBON TETRACHLORIDE	2		BDL	BDL	
CHLOROBENZENE	1		BDL	BDL	
CHLOROETHANE	1		BDL	BDL	
2-CHLOROETHYL VINYL ETHER	5		BDL	BDL	
CHLOROFORM	2		BDL	BDL	
CHLOROMETHANE	2		BDL	BDL	
DIBROMOCHLOROMETHANE	5		BDL	BDL	
DIBROMOMETHANE	5		BDL	BDL	
DICHLORODIFLUOROMETHANE	5		BDL	BDL	
1,1-DICHLOROETHANE	1		BDL	BDL	
1,2-DICHLOROETHANE	2		BDL	BDL	
1,1-DICHLOROETHENE	1		BDL	BDL	
TOTAL 1,2-DICHLOROETHYLENE	5		BDL	BDL	
1,2-DICHLOROPROPANE	2		BDL	BDL	
CIS-1,3-DICHLOROPROPENE	1		BDL	BDL	
TRANS-1,3-DICHLOROPROPENE	1		BDL	BDL	
1,4-DICHLORO-2-BUTENE	5		BDL	BDL	
ETHANOL	50		BDL	BDL	
ETHYL BENZENE	1		BDL	BDL	
ETHYL METHACRYLATE	5		BDL	BDL	
2-HEXANONE	3		BDL	BDL	
IODOMETHANE	5		BDL	BDL	
METHYLENE CHLORIDE	5		BDL	BDL	
4-METHYL-2-PENTANONE	3		BDL	BDL	
STYRENE	2		BDL	BDL	

## NOTE:

Units in ug/l = Part Per Billion.

BDL = Below Detection limit.

Source for control limits is internal laboratory quality assurance program and the method reference.

N/S = NOT SUBMITTED

N/A = NOT APPLICABLE



## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0129

PARAMETERS	DETECTION LIMIT	BLANK A	BLANK B
		EXTRACTION DATE ANALYSIS DATE	EXTRACTION DATE ANALYSIS DATE
		N/A 12-02-92	12-02-92 12-02-92
		RESULTS	RESULTS
1,1,2,2-TETRACHLOROETHANE	2	BDL	BDL
TETRACHLOROETHENE	1	BDL	BDL
TOLUENE	5	BDL	BDL
1,1,1-TRICHLOROETHANE	5	BDL	BDL
1,1,2-TRICHLOROETHANE	2	BDL	BDL
TRICHLOROETHENE	1	BDL	BDL
TRICHLOROFLUOROMETHANE	1	BDL	BDL
1,2,3-TRICHLOROPROPANE	5	BDL	BDL
VINYL ACETATE	2	BDL	BDL
VINYL CHLORIDE	1	BDL	BDL
METHYL TERT-BUTYL ETHER	10	BDL	BDL
XYLENES	4	BDL	BDL
1,3-DICHLOROBENZENE	5	BDL	BDL
1,2-DICHLOROBENZENE	5	BDL	BDL
1,4-DICHLOROBENZENE	5	BDL	BDL
1,2-DICHLOROETHANE - D4	(87-106)	99	94
TOLUENE - D8	(91-108)	108	104
BROMOFLUOROBENZENE	(93-107)	102	106

NOTE: Units in ug/l = Part Per Billion.  
BDL = Below Detection limit.  
Source for control limits is internal laboratory quality assurance  
program and the method reference.  
N/S = NOT SUBMITTED N/A = NOT APPLICABLE



## METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0129

PARAMETERS	BLANK C		BLANK D	
	EXTRACTION DATE	12-02-92	EXTRACTION DATE	12-04-92
	ANALYSIS DATE	12-03-92	ANALYSIS DATE	12-04-92
	DETECTION LIMIT	RESULTS	RESULTS	
ACETONE	10	BDL	BDL	
ACROLEIN	100	BDL	BDL	
ACRYLONITRILE	100	BDL	BDL	
BENZENE	1	BDL	BDL	
BROMODICHLOROMETHANE	1	BDL	BDL	
BROMOFORM	2	BDL	BDL	
BROMOMETHANE	1	BDL	BDL	
2-BUTANONE (MEK)	3	BDL	BDL	
CARBON DISULFIDE	1	BDL	BDL	
CARBON TETRACHLORIDE	2	BDL	BDL	
CHLOROBENZENE	1	BDL	BDL	
CHLOROETHANE	1	BDL	BDL	
2-CHLOROETHYL VINYL ETHER	5	BDL	BDL	
CHLOROFORM	2	BDL	BDL	
CHLOROMETHANE	2	BDL	BDL	
DIBROMOCHLOROMETHANE	5	BDL	BDL	
DIBROMOMETHANE	5	BDL	BDL	
DICHLORODIFLUOROMETHANE	5	BDL	BDL	
1,1-DICHLOROETHANE	1	BDL	BDL	
1,2-DICHLOROETHANE	2	BDL	BDL	
1,1-DICHLOROETHENE	1	BDL	BDL	
TOTAL 1,2-DICHLOROETHYLENE	5	BDL	BDL	
1,2-DICHLOROPROPANE	2	BDL	BDL	
CIS-1,3-DICHLOROPROPENE	1	BDL	BDL	
TRANS-1,3-DICHLOROPROPENE	1	BDL	BDL	
1,4-DICHLORO-2-BUTENE	5	BDL	BDL	
ETHANOL	50	BDL	BDL	
ETHYL BENZENE	1	BDL	BDL	
ETHYL METHACRYLATE	5	BDL	BDL	
2-HEXANONE	3	BDL	BDL	
IODOMETHANE	5	BDL	BDL	
METHYLENE CHLORIDE	5	BDL	BDL	
4-METHYL-2-PENTANONE	3	BDL	BDL	
STYRENE	2	BDL	BDL	

## NOTE:

Units in ug/l = Part Per Billion.

BDL = Below Detection limit.

Source for control limits is internal laboratory quality assurance program and the method reference.

N/S = NOT SUBMITTED

N/A = NOT APPLICABLE



METHOD INSTRUMENT BLANK

BATCH NUMBER: NT0129

PARAMETERS	BLANK C		BLANK D	
	EXTRACTION DATE	12-02-92	12-04-92	
	ANALYSIS DATE	12-03-92	12-04-92	
	DETECTION LIMIT	RESULTS	RESULTS	
1,1,2,2-TETRACHLOROETHANE	2	BDL	BDL	
TETRACHLOROETHENE	1	BDL	BDL	
TOLUENE	5	BDL	BDL	
1,1,1-TRICHLOROETHANE	5	BDL	BDL	
1,1,2-TRICHLOROETHANE	2	BDL	BDL	
TRICHLOROETHENE	1	BDL	BDL	
TRICHLOROFLUOROMETHANE	1	BDL	BDL	
1,2,3-TRICHLOROPROPANE	5	BDL	BDL	
VINYL ACETATE	2	BDL	BDL	
VINYL CHLORIDE	1	BDL	BDL	
METHYL TERT-BUTYL ETHER	10	BDL	BDL	
XYLENES	4	BDL	BDL	
1,3-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROBENZENE	5	BDL	BDL	
1,4-DICHLOROBENZENE	5	BDL	BDL	
1,2-DICHLOROETHANE - D4	(76-114)	104	88	
TOLUENE - D8	(88-110)	101	106	
BROMOFLUOROBENZENE	(86-115)	105	98	

NOTE: Units in ug/l = Part Per Billion.  
BDL = Below Detection limit.  
Source for control limits is internal laboratory quality assurance program and the method reference.  
N/S = NOT SUBMITTED N/A = NOT APPLICABLE



WATER MATRIX SPIKE

BATCH NUMBER: NT0129

SAMPLE SPIKED: 92-9834-3

COMPOUNDS	SPIKE ADDED	SAMPLE CONC	MS CONC	MS REC%#	REC LIMITS
1,1-DICHLOROETHENE	50	BDL	59	118	76-120
TRICHLOROETHENE	50	BDL	49	98	86-104
BENZENE	50	BDL	52	104	92-104
TOLUENE	50	BDL	54	108	84-114
CHLOROBENZENE	50	BDL	52	104	88-111

COMPOUNDS	SPIKE ADDED	SAMPLE CONC	MSD CONC	MSD REC%#	RPD#	QC LIMITS	
						RPD	REC
1,1-DICHLOROETHENE	50	BDL	57	114	3	14	76-120
TRICHLOROETHENE	50	BDL	47	94	4	14	86-104
BENZENE	50	BDL	49	98	6	11	92-104
TOLUENE	50	BDL	55	110	2	13	84-114
CHLOROBENZENE	50	BDL	52	104	0	13	88-111

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

0 out of 10 % recoveries out of limits  
0 out of 6 surrogate recoveries out of limits  
0 out of 5 RPD's out of limits

ITEM ID:	ANALYSIS DATE	SURROGATE RECOVERY		
		S1	S2	S3
MS	12-03-92	106%	101%	107%
MSD	12-03-92	102%	102%	106%

D = DILUTED OUT

NOTE: Units in ug/l = Parts Per Billion.  
BDL = Below Detection Limit.  
Source for control limits is internal laboratory quality assurance program and method reference.

QC LIMITS  
S1 = 1,2-DICHLOROETHANE - D4 (87-106)  
S2 = TOLUENE - D8 (91-108)  
S3 = BROMOFLUOROBENZENE (93-107)

COMMENTS:

# SAMPLE INSPECTION AND IDENTIFICATION SHEET/OUT OF CONTROL EVENTS

Client: Ogden-Oakridge

ATI Lab ID # 92- 9834

PROJ NUMBER: 0-4227-0100-0001

PROJ NAME: US PIPE

SAMPLED BY: Lee/N.

SAMPLE SITE: US Pipe/Chartt.

SAMPLE DATE: 11/24/92

SAMPLE TIME: Pm

SAMPLE TYPE: Soil

RUSH: Y ☒ N ☐ QC: N 0 1 ☒ 2 3 4

Date Received: 11/27/92

Is there a chain of custody? ☒ Y ☐ N

Was chain of custody signed? ☒ Y ☐ N

Were samples received cold? ☒ Y ☐ N

Were samples received in proper containers? ☒ Y ☐ N

SHIPPED BY: \_\_\_\_\_

COOLER #: \_\_\_\_\_

OUT OF CONTROL EVENTS: Received 1 bottle unlabeled since we received only 2 jars labeled SP-SD-S01 I believe the unlabeled jar to be SP-SD-S01

✓✓ SPECIAL INSTRUCTIONS: Please Do TCLP EXTRACTION prior to analysis of all compounds including Toluene

	SAMPLE	DATE
1	VFP-SD-S01	11/24/92
2	S02	
3	S03	
4	S04	
5	S05	
6	↓ ↓ S06	
7	SP-SD-S01	
8	S02	
9	S03	
10	↓ ↓ S04	↓

Were samples preserved correctly? ☒ Y ☐ N

Headspace in volatile bottles? Y ☐ N/A

Were samples within holding time? ☒ Y ☐ N

Is there sufficient sample volume? ☒ Y ☐ N

ATI WILL PERFORM THE SERVICES IN ACCORDANCE WITH NORMAL PROFESSIONAL STANDARDS FOR THE INDUSTRY. THE TOTAL LIABILITY OF ATI, ANY AND ALL OFFICERS AND EMPLOYEES OR SUCCESSORS, TO CLIENTS FOR SERVICES PROVIDED, WILL NOT EXCEED THE INVOICE AMOUNT FOR SAID SERVICE. CLIENT ACCEPTANCE OF A PROPOSAL RELEASES ATI FROM ANY LIABILITY IN EXCESS THEREOF.

PM APPROVAL TS 1120 INSPECTED BY SD DATE INSPECTED 12/27/92  
# OF REPORTS 3

BLR WS/FORMS/INSPSHEE.TS

MWPS002200

# SAMPLE INSPECTION AND IDENTIFICATION SHEET/OUT OF CONTROL EVENTS

client: Ogden-Oakridge

ATI Lab ID # 92-9834

PROJ NUMBER: 0-4227-0100-0001

PROJ NAME: US PIPE

SAMPLED BY: Lee/N.

SAMPLE SITE: US Pipe/Chart.

SAMPLE DATE: 11/24/92

SAMPLE TIME: Pm

SAMPLE TYPE: Soil

RUSH: Y ☒ N ☐ QC: N 0 1 ☒ 2 3 4

Date Received: 11/27/92

Is there a chain of custody? ☒ Y ☐ N

Was chain of custody signed? ☒ Y ☐ N

Were samples received cold? ☒ Y ☐ N

Were samples received in proper containers? ☒ Y ☐ N

SHIPPED BY: \_\_\_\_\_

COOLER #: \_\_\_\_\_

OUT OF CONTROL EVENTS: Received 1 bottle unlabeled since we received only 2 jars labeled SP-SD-S01 I believe the unlabeled jar to be SP-SD-S01

✓ SPECIAL INSTRUCTIONS: Please Do TCLP EXTRACTION prior to ANALYSIS of all compounds including Toluene

SAMPLE	DATE
1 VFP-SD-S01	11/24/92
2	
3	
4	
5	
6	
7 SP-SD-S01	
8	
9	
10	

Were samples preserved correctly? ☒ Y ☐ N

Headspace in volatile bottles? Y ☐ N ☒ N/A

Were samples within holding time? ☒ Y ☐ N

Is there sufficient sample volume? ☒ Y ☐ N

ATI WILL PERFORM THE SERVICES IN ACCORDANCE WITH NORMAL PROFESSIONAL STANDARDS FOR THE INDUSTRY. THE TOTAL LIABILITY OF ATI, ANY AND ALL OFFICERS AND EMPLOYEES OR SUCCESSORS, TO CLIENTS FOR SERVICES PROVIDED, WILL NOT EXCEED THE INVOICE AMOUNT FOR SAID SERVICE. CLIENT ACCEPTANCE OF A PROPOSAL RELEASES ATI FROM ANY LIABILITY IN EXCESS THEREOF.

PM APPROVAL TS 1120 INSPECTED BY SD DATE INSPECTED 12/27/92  
# OF REPORTS 3

BLR WS/FORMS/INSPSHEE.TS

## CHAIN OF CUSTODY

ATI LAB. I.D. #



Analytical Technologies, Inc.

11 EAST OLIVE ROAD

PHONE (904) 474-1001

PENSACOLA, FLORIDA 32514

## PART 1 — Bottle Shipment Information

CLIENT: <u>Dyden</u>	CLIENT PROJECT NUMBER: <u>0-4227-0100-0001</u>
----------------------	--

SAMPLE CONTAINERS SHIPPED	PRESERVATIVE				PLASTIC CONTAINERS				GLASS CONTAINERS			
	H <sub>2</sub> O <sub>2</sub>	HNO <sub>3</sub>	HCl	Zn ACETATE	H <sub>2</sub> SO <sub>4</sub>	UNPRESERVED	4 oz.	8 oz.	16 oz.	32 oz.	1/2 gallon	1 gallon
QTY.												
39				✓								

RELINQUISHED BY: <u>Patricia Catching</u>	TIME: <u>1630</u>	DATE: <u>11/2/92</u>	RECEIVED BY: <u>[Signature]</u>	TIME: <u>1630</u>	DATE: <u>11/2/92</u>
---	-------------------	----------------------	---------------------------------	-------------------	----------------------

## PART 2 — Sample Information

## PARAMETERS AND PRESERVATIVES

## SAMPLE MATRIX

DW DRINKING WATER OL OIL  
 WW WASTEWATER AR AIR  
 GW GROUNDWATER SL SLUDGE  
 SW SURFACEWATER  
 SO SOIL

SAMPLE I.D.	DATE	TIME	MATRIX	Cadmium - TCLP				Total Chromium - TCLP				Lead - TCLP				Total Phosphorus - TCLP				Toluene - TCLP				TOTAL	LAB USE ONLY
VFP-SD-S01	11-24	1300	SD																					3	1
VFP-SD-S02	11-24	1305	SD																					3	2
VFP-SD-S03	11-24	1310	SD																					3	3
VFP-SD-S04	11-24	1315	SD																					3	4
VFP-SD-S05	11-24	1320	SD																					3	5
VFP-SD-S06	11-24	1330	SD																					3	6
SP-SD-S01	11-24	1405	SD																					3	7
SP-SD-S02	11-24	1410	SD																					3	8
SP-SD-S03	11-24	1415	SD																					3	9
SP-SD-S04	11-24	1420	SD																					3	10
SP-SD-S05	11-24	1430	SD																					3	11
SP-SD-S06	11-24	1440	SD																					3	12

TOTAL NUMBER OF BOTTLES/CONTAINERS

36

RELINQUISHED BY: <u>[Signature]</u>	DATE: <u>11/2/92</u>	TIME: <u>1530</u>	RECEIVED BY: <u>[Signature]</u>	DATE: <u>11/2/92</u>	TIME: <u>1515</u>
-------------------------------------	----------------------	-------------------	---------------------------------	----------------------	-------------------

CLIENT: Dyden  
 ADDRESS: 1007 Commerce Park  
 CITY: Orlando  
 STATE: FL ZIP: 32830  
 PHONE NO.: (407) 615-2111  
 PROJECT MANAGER (person to receive data): [Signature]

PROJECT NUMBER: 0-4227-0100-0001  
 PROJECT NAME: US Paper  
 SAMPLED BY: LOP / [Signature]  
 SAMPLE SITE: US Paper / Chatt.  
 PURCHASE ORDER NUMBER: \_\_\_\_\_

REQUEST FAX DATA BY: \_\_\_\_\_ (FAX #)  
 REQUEST VERBAL RESULTS BY: \_\_\_\_\_ (DATE)  
 NEED DATA PACKAGE BY: \_\_\_\_\_ (DATE)  
 QUALITY CONTROL REPORTING LEVEL (check one)  
 NONE ☐ 1 ☐ 2 ☐ 3 ☐ 4  
 NEED \_\_\_\_\_ EXTRA COPIES OF REPORT

## TURN AROUND TIMES (check one)

STANDARD - 14 TO 21 DAYS ☒

RUSH: (MUST BE APPROVED IN ADVANCE)

0-48 HOURS - 2 x STD PRICE ☐3-7 DAYS - 1.5 x STD PRICE ☐TCLP - 1 WEEK RUSH - 1.5 x STD PRICE ☐

## SPECIAL INSTRUCTIONS:



Analytical Technologies, Inc.

11 East Olive Road

Pensacola, Florida 32514

(904) 474-1001

OGDEN-OAK RIDGE  
1009 COMMERCE PARK DRIVE  
SUITE 100  
OAK RIDGE TN 37830-0000

Lab I.D.#: 92-9834A  
Order Number: P66806  
Received Date: 11/27/92  
Client: 05140  
Sampled By: LEE/N.  
Sample Date: 11/24/92  
Sample Time: PM

Project Number: 0-4227-0100-0001  
Project Name: U S PIPE  
Sample Site: U S PIPE/CHATT.  
Sample Type: SOIL

N/S = Not Submitted

Lab ID	Sample ID	Parameter	Units	Results	Detection Limit
9834A-1	VFP-SD-S01	CYANIDE, TCLP	PPM	BDL	0.005
9834A-2	VFP-SD-S02	CYANIDE, TCLP	PPM	BDL	0.005
9834A-3	VFP-SD-S03	CYANIDE, TCLP	PPM	BDL	0.005
9834A-4	VFP-SD-S04	CYANIDE, TCLP	PPM	BDL	0.005
9834A-5	VFP-SD-S05	CYANIDE, TCLP	PPM	BDL	0.005
9834A-6	VFP-SD-S06	CYANIDE, TCLP	PPM	BDL	0.005
9834A-7	SP-SD-S01	CYANIDE, TCLP	PPM	BDL	0.005
9834A-8	SP-SD-S02	CYANIDE, TCLP	PPM	BDL	0.005
9834A-9	SP-SD-S03	CYANIDE, TCLP	PPM	BDL	0.005
9834A-10	SP-SD-S04	CYANIDE, TCLP	PPM	BDL	0.005
9834A-11	SP-SD-S05	CYANIDE, TCLP	PPM	BDL	0.005
9834A-12	SP-SD-S06	CYANIDE, TCLP	PPM	BDL	0.005

Comments: PPM = Parts Per Million, mg/l; BDL = Below Detection Limit.  
Method Reference: EPA 600/4-79-020, Revised March 1983.

page 1 Approved By : Peter Shuba end of report

MWPS002203



Analytical**Technologies, Inc.** 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

Q U A L I T Y   C O N T R O L  
D A T A

MWPS002204



Analytical Technologies, Inc.  
11 EAST OLIVE ROAD  
PENSACOLA, FLORIDA 32514

PHONE (904) 474-1001

# INORGANICS

CLIENT NAME: OGDEN-OAK RIDGE

PROJECT: 0-4227-0100-0001

LAB ID: 92-9834A

QC LEVEL: I

<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>
92-9834A-1	VFP-SD-S01	92-9834A-7	SP-SD-S01
92-9834A-2	VFP-SD-S02	92-9834A-8	SP-SD-S02
92-9834A-3	VFP-SD-S03	92-9834A-9	SP-SD-S03
92-9834A-4	VFP-SD-S04	92-9834A-10	SP-SD-S04
92-9834A-5	VFP-SD-S05	92-9834A-11	SP-SD-S05
92-9834A-6	VFP-SD-S06	92-9834A-12	SP-SD-S06

Notes: PPM = Parts Per Million, mg/l.

BDL = Below Detection Limit.

Control limits are from ATI's internal quality assurance program and the referenced method.  
See final report for actual sample detection limit(s).

Reference: EPA 600/4-79-020, Revised March 1983.

MWPS002205



Analytical Technologies, Inc.

11 EAST OLIVE ROAD

PHONE (904) 474-1001

PENSACOLA, FLORIDA 32514

LAB ID: 92-9834A

PAGE 1 OF 1

PARAMETER	PREPARATION DATE	ANALYSIS DATE	BATCH #	METHOD	BLANK DETECTION LIMIT	BLANK RESULT	DUPLIC SAMPLE RESULT	DUPLIC RESULT	RPD SAMPLE	MAX RPD	SAMPLE RESULT	SPIKED SAMPLE RESULT	SPIKE ADDED	%REC MS	%REC CONTROL LIMITS
CN,TCLP	12-14-92	12-14-92	CN-68W	335.2	0.005	BDL	BDL	BDL	N/C	0.005	BDL	0.094	0.100	94	78-115

PARAMETER	SAMPLE DUPLIC	SAMPLE DUP DETECTION LIMIT	SAMPLE SPIKED	SAMPLE SPK DETECTION LIMIT
CN,TCLP	10248-1	0.005	10248-1	0.005

MWPS002206



Analytical Technologies, Inc.  
11 EAST OLIVE ROAD  
PENSACOLA, FLORIDA 32514

PHONE (904) 474-1001

#### EXPLANATION OF INORGANIC FOOTNOTES

N/A = NOT APPLICABLE.

N/S = NOT SUBMITTED.

N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI METHOD DETECTION LIMIT;  
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.

N/D = NOT DETECTED.

DISS. OR D = DISSOLVED

T & D = TOTAL AND DISSOLVED

R = REACTIVE

T = TOTAL

G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI METHOD DETECTION LIMIT AND THE ABSOLUTE  
DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW ATI METHOD DETECTION  
LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".

Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO FAILURE OF THE MATRIX  
(PRE-DIGESTION) SPIKE.

# = ELEVATED DETECTION LIMIT DUE TO INSUFFICIENT SAMPLE.

+ = ELEVATED DETECTION LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.

\* = ELEVATED DETECTION LIMIT DUE TO MATRIX INTERFERENCE.

@ = ADJUSTED DETECTION LIMIT DUE TO SAMPLE MATRIX.

P = ANALYTICAL (POST-DIGESTION) SPIKE

I = DUPLICATE INJECTION

& = AUTOMATED

F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.

N/C+ = NOT CALCULABLE

N/C\* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.

H = SAMPLE AND/OR DUPLICATE IS BELOW 5 X ATI METHOD DETECTION LIMIT AND THE ABSOLUTE  
DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI METHOD DETECTION LIMIT; THEREFORE,  
THE RESULTS ARE "OUT OF CONTROL"; SAMPLE IS NON-HOMOGENEOUS.

A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL"; SAMPLE IS NON-HOMOGENEOUS.

Z = ELEVATED DETECTION LIMIT - HISTORICAL BOD DATA NOT AVAILABLE TO SELECT  
PROPER SAMPLE DILUTIONS.

UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
BEFORE THE ADMINISTRATOR

IN THE MATTER OF	)	
	)	
U.S. PIPE AND FOUNDRY	)	
Chattanooga, Tennessee	)	RCRA Docket No. 89-28-R
	)	
Respondent.	)	
_____	)	

CONSENT AGREEMENT AND FINAL ORDER

A Complaint and Compliance Order was issued pursuant to 3008(a)(1) of the Resource Conservation and Recovery Act (RCRA) as amended, 42, U.S.C. § 6928 (a)(1), and pursuant to the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties and the Revocation or Suspension of Permits found at 40 C.F.R. § 22. The Complainant is the Director, Waste Management Division, Region IV, United States Environmental Protection Agency (Complainant or EPA). The Respondent is U.S. Pipe and Foundry (Respondent) a company doing business in Chattanooga, Tennessee.

Complainant and Respondent have conferred for the purpose of settlement pursuant to 40 C.F.R. § 22.18, and Complainant and Respondent desire to resolve and settle this action. Accordingly, before any testimony has been taken upon the pleadings, and without adjudication of any issue of fact or law herein, and with Respondent denying Complainant's allegations, findings of fact and conclusions of law except as expressly agreed herein, the parties hereby stipulate and agree as follows:

Preliminary Statements

1. Respondent has been served with a copy of the Complaint and Compliance Order, issued on July 24, 1989, together with a Notice of Opportunity for hearing in the matter and admits for purposes of this proceeding only, that the Regional Administrator has jurisdiction over this matter pursuant to RCRA § 3008, 42 U.S.C. § 6928.

2. Respondent is a corporation doing business in the State of Tennessee and is a person as defined by Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15). On December 29, 1989, Respondent filed a Notice of Case under Chapter 11 of the United States Bankruptcy Code.

3. Respondent owns and operates one foundry facility in Chattanooga, Tennessee. One of the solid wastes generated at this facility is the cupola fly ash that is collected at the baghouse collectors. EPA alleges such fly ash to be a hazardous waste as defined in RCRA § 1004(5), 42 U.S.C. § 6903(5), Tennessee Rule (TR) 1200-1-11.02(2) and 40 CFR 260.10.

4. In January 1989, pursuant to an agreement with the Tennessee Department of Solid Waste Management, Respondent installed a fixation system for the treatment of the fly ash. Respondent alleges that before this treatment system was installed, the fly ash was mixed with other process wastes in accumulation areas or bins before being transported to the

facility landfill. EPA alleges that these areas are waste piles where hazardous waste was treated and therefore subject to regulation under RCRA. Respondent specifically denies this allegation.

5. EPA alleges that Respondent failed to submit to EPA, in a timely manner, a notification of hazardous waste activity pursuant to RCRA § 3010(a), 42 U.S.C. § 6930, and Part A of its hazardous waste permit application pursuant to RCRA § 3005(e), 42 U.S.C. § 6925(e). EPA has determined that Respondent is nonetheless, subject to TR 1200-1-11-.05 and 40 CFR 265 as required by TR 12200-1-11-.05 (1)(b) 1 and 40 CFR 265.1(b).

6. Based on information received after the Complaint was issued, including results of an EPA inspection on April 18, 1989, and correspondence concerning treatment of the fly ash at the waste piles, Complainant alleges that Respondent violated all or portions of:

- a) 40 CFR 265, Subparts A, B, and L by its failure to obtain a permit for treatment of hazardous waste, develop and implement a waste analysis plan, develop and follow a written inspection schedule, maintain an operating log, and provide training on waste management procedures,
- b) 40 CFR 265, Subpart G and H by its failure to have a written closure plan, develop a cost estimate for closure and its failure to submit financial assurance instruments to cover the cost of closure and its failure

to demonstrate liability insurance coverage for sudden accidental occurrences.

FINAL ORDER

Based on the foregoing stipulations, the parties agree to the entry of the following Final Order in this matter:

A. Respondent agrees to the entry of the following Order and waives its right to a hearing in this proceeding on any question of law or fact raised by the allegations contained in the Complaint and Compliance Order.

B. Within thirty (30) days of the effective date of this Consent Agreement and Final Order, Respondent shall submit a <sup>sample</sup> groundwater monitoring plan for the landfill. At a minimum, this plan shall include the installation of two additional downgradient wells and a Sampling and Analysis Plan that meets TR 1200-1-11-.05(6)c.

✓C. Within thirty (30) days of the effective date of this Consent Agreement and Final Order, Respondent shall submit:

✓1. A written report of the activities performed in the past, for closure of the waste piles.

✓2. A plan describing the activities to be conducted to <sup>Cd & Pb</sup> determine whether or not all waste and contaminated materials were removed during the activities described in paragraph C.1. <sup>(waste piles)</sup> This plan shall include an implementation schedule. <sup>(mixing)</sup>

✓D. Within thirty (30) days after receiving EPA's approval of the Plan submitted pursuant to paragraph C.2., Respondent shall initiate implementation of such plan as approved.

✓ E. Within thirty (30) days after completion of the plan, Respondent shall submit:

1. A certification that the plan has been implemented as approved.

✓ 2. A report describing the conditions of the closed units including analytical data <sup>Cd & Pb</sup> to determine if all waste residue has been removed from the units.

F. Within sixty (60) days after receipt of the report, EPA shall inform Respondent, whether a post closure permit application is needed for the waste piles.

G. All reports required by this Consent Agreement will include a certification statement signed by Respondent or its responsible officials assuring that the information contained in the report is true, accurate and complete.

H. Any person that knowingly and willfully submits to EPA, any report or document containing false or fraudulent information or that uses any false writing or document knowing the same contains fictitious or fraudulent statements or entries may be subject to the penalties provided in 18 U.S.C. Section 1001.

I. Respondent shall submit documents required by this Consent Agreement and Final Order to:

James H. Scarbrough, P.E. Chief  
RCRA & Federal Facilities Branch  
U.S. EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, GA 30365

Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health and Environment  
Custom House  
701 Broadway  
Nashville, TN 37219

J. Notwithstanding any other provisions of this Consent Agreement and Final Order, an enforcement action could be brought pursuant to § 7003 of RCRA, 42 U.S.C. § 6923 or other statutory authority, should the EPA find that the handling, storage, treatment, transportation or disposal of solid waste or hazardous waste at the facility may present an imminent and substantial endangerment to human health or the environment. Respondent reserves any rights it may have to contest such an action.

K. Nothing contained in this Agreement shall prohibit the EPA from taking any action pursuant to 3008(h) of RCRA or any other applicable provision of 42 USC Section 6901 et seq., as amended. Respondent reserves any rights it may have to contest such an action.

L. Further, this Agreement and Final Order shall not under any circumstances constitute evidence of or be considered as an admission by Respondent of any wrongdoing or violation of law or breach of duty in any case, cause, controversy or court of law or equity, nor be used for any purposes whatsoever except in a proceeding to enforce the terms and conditions of this Agreement and Final Order.

M. The parties agree that settlement of this matter is in the public interest and fully complies with the requirements of RCRA. Compliance with the terms of this Consent Agreement and Final Order fully resolves all issues and controversies as described in the allegations of the Complaint and herein.

EFFECTIVE DATE

The effective date of this Consent Agreement and Order shall be the date it is approved by the Regional Administrator.

Agreed to this 5th day of December, 1990.

United States Pipe and Foundry  
Respondent

By : William E. Fluck

Title: Vice President-Manufacturing

Agreed to this 5th day of December, 1990.

Complainant

Dr. James H. Seabrook

Donald J. Guinyard  
Acting Director, Waste Management Division  
U.S. Environmental Protection Agency  
Region IV

It being AGREED it is so ORDERED this 12th day  
of December, 1990.

Barter, Acting

Greer C. Tidwell  
Regional Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

FEB 21 1996

4WD-RCRA

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

G. O. ENG.  
FEB 20 1996  
RECEIVED

Mr. J. H. Watson  
Principal Environmental Engineer  
United States Pipe and Foundry Company  
3300 First Avenue North 35222  
P.O. Box 10406  
Birmingham, Alabama 35202

SUBJ: Chattanooga Plant Mixing Bins  
TND 07489 3777 and TND 98031 6301

Dear Mr. Watson:

The Environmental Protection Agency (EPA) Region 4 and the Tennessee Division of Solid Waste Management (TDSWM) have completed the review of U.S. Pipe and Foundry Company's Closure Activities Report dated December 22, 1992 and the supplement report of sampling activities on September 21, 1995. U.S. Pipe and Foundry has met the terms of the Consent Agreement and Final Order between EPA and U.S. Pipe issued on December 12, 1990, and no further action is necessary.

If you have any questions or comments regarding this letter, please contact, Kristin Lippert, at 404/347-3555 ext. 6400.

Sincerely yours,

Jeaneanne M. Gettle  
Acting Chief, RCRA Compliance Section  
Office of RCRA and Federal Facilities

cc: Tom Tiesler, TDEC  
Al Frakes, TDEC  
Guy Moose, TDEC - Chattanooga Field office  
James L. Smallwood - U.S. Pipe and Foundry Company  
Chattanooga Valve & Fitting Plant  
P.O. Drawer 311  
Chattanooga, Tennessee 37401

✓ Copies to: (FYI)

Bill Fleck  
Mike Keel  
Don Wallace  
John Pikciunas

\*Note: Confirmation that the former  
mixing bins @ CSP & CVF are  
"officially" closed!

MWPS002215



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

FEB 21 1996

4WD-RCRA

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

G.O. ENG.  
FEB 26 1996  
RECEIVED

Mr. J. H. Watson  
Principal Environmental Engineer  
United States Pipe and Foundry Company  
3300 First Avenue North 35222  
P.O. Box 10406  
Birmingham, Alabama 35202

SUBJ: Chattanooga Plant Mixing Bins  
TND 07489 3777 and TND 98031 6301

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If you have any questions or comments regarding this letter, please contact, Kristin Lippert, at 404/347-3555 ext. 6400.

Sincerely yours,

Jeaneanne M. Gettle  
Acting Chief, RCRA Compliance Section  
Office of RCRA and Federal Facilities

cc: Tom Tiesler, TDEC  
Al Frakes, TDEC  
Guy Moose, TDEC - Chattanooga Field office  
James L. Smallwood - U.S. Pipe and Foundry Company  
Chattanooga Valve & Fitting Plant  
P.O. Drawer 311  
Chattanooga, Tennessee 37401

MWPS002216



UNITED STATES PIPE AND FOUNDRY COMPANY

Chattanooga Valve & Fittings Plant  
P.O. Drawer 311  
CHATTANOOGA, TENNESSEE 37401

September 21, 1995

Ms. Jeaneanne M. Gettle  
Acting Chief  
RCRA Compliance Section  
U.S. EPA - Region IV  
345 Courtland St NE  
Atlanta, GA 30365


Subject: **Closure Activities Report** dated December 22, 1992  
~~Chattanooga Plant Mixing Bins~~  
TND 07 489 3777 and TND 98 031 6301

Dear Ms. Gettle:

Enclosed is a copy of a letter from Ogden Environmental and Energy Services (Ogden) to Mr. Jim Book, U.S. Pipe & Foundry Co., concerning the mixing bins closure activities. This letter should supplement Ogden's Closure Activities Report dated December 22, 1992.

If any further information is needed, please contact John Watson, Principal Environmental Engineer, U. S. Pipe at (205) 254-7434 or me at (423) 752-3910.

Yours truly,

  
James L. Smallwood  
Plant Engineer

JLS:csb

Enclosure

cc: Tom Tiesler, TDEC  
Al Franks, TDEC  
John Watson, U.S. Pipe (Enclosure)  
J. C. Wright, Esg. (Enclosure)

G. O. ENG.

SEP 26 1995

RECEIVED

# OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1009 Commerce Park Drive, Suite 100  
Oak Ridge, TN 37830  
615 481 8002  
Fax 615 462 4074

6 September 1995

Mr. Jim Book  
U.S. Pipe & Foundry Co.  
P.O. Box 311  
271 Chestnut Street  
Chattanooga, TN 37401-0311

RE: Report of Sampling Activities in Response to  
EPA's Comments to Closure Activities Report;  
Soil Pipe Plant and Valve & Fittings Plant Mixing Bins  
Ogden Project No. 0-4227-0010-0100

Dear Jim:

This is to transmit the analytical data for the samples collected in front of the Soil Pipe Plant Mixing Bin. Three samples were collected from a depth of one foot at the locations shown on the site sketch (Figure 1). Please note that samples were collected only at the Soil Pipe Plant Mixing Bin in accordance with a telephone conversation I had with Ms. Kristin Lippert of EPA Region IV. Construction of a concrete pad at the Valve & Fittings Plant Mixing Bin prohibited the collection of samples without boring through the concrete.

Industry protocols were utilized regarding decontamination of equipment and sample handling procedures. The three samples were delivered to Analytical Industrial Research Laboratory in Chattanooga for analysis for toluene and by the Toxicity Characteristic Leaching Procedure (TCLP) for cadmium, lead, phenols, and cyanide. The results, which are tabulated below, indicate that the samples did not contain the analytes above laboratory reporting limits except for lead in sample no. SP-2-02 which was laboratory reported at 0.654 mg/L. The Resource Conservation & Recovery Act (RCRA) TCLP regulatory level for lead is 5.0 mg/L. The laboratory report is attached.

Sample ID	Toluene	TCLP Cadmium	TCLP Lead	TCLP Phenols	TCLP Cyanide
SP-2-01	<0.01	<0.100	<0.500	<0.1	<0.02
SP-2-02	<0.01	<0.100	<0.500	<0.1	<0.02
SP-2-03	<0.01	<0.100	0.654	<0.1	<0.02


Samples collected on 17 August 1995. All results in parts per million.

Mr. Jim Book  
U.S. Pipe & Foundry Co.  
6 September 1995  
Page 2

The laboratory results are lower than the results reported in the 1992 Closure Report. According to agreement between Ogden, on behalf of U.S. Pipe, and Ms. Lippert, if the three samples from the Soil Pipe Mixing Bin were analyzed at similar or lesser levels than the samples collected for the 1992 sampling event, no further action at either mixing bin would be necessary. Ogden recommends submittal of this letter report to EPA along with a letter requesting that a "No Further Action" status be assigned to both sites.

Should the report contents require further clarification or amplification, please contact James Annear, Environmental Scientist, at (615) 481-8002, ext. 3154.

Sincerely,

  
Charles F. Priddy, Jr. P.E.

CFP:ksr [CFP#3:uspipmix.ltr]

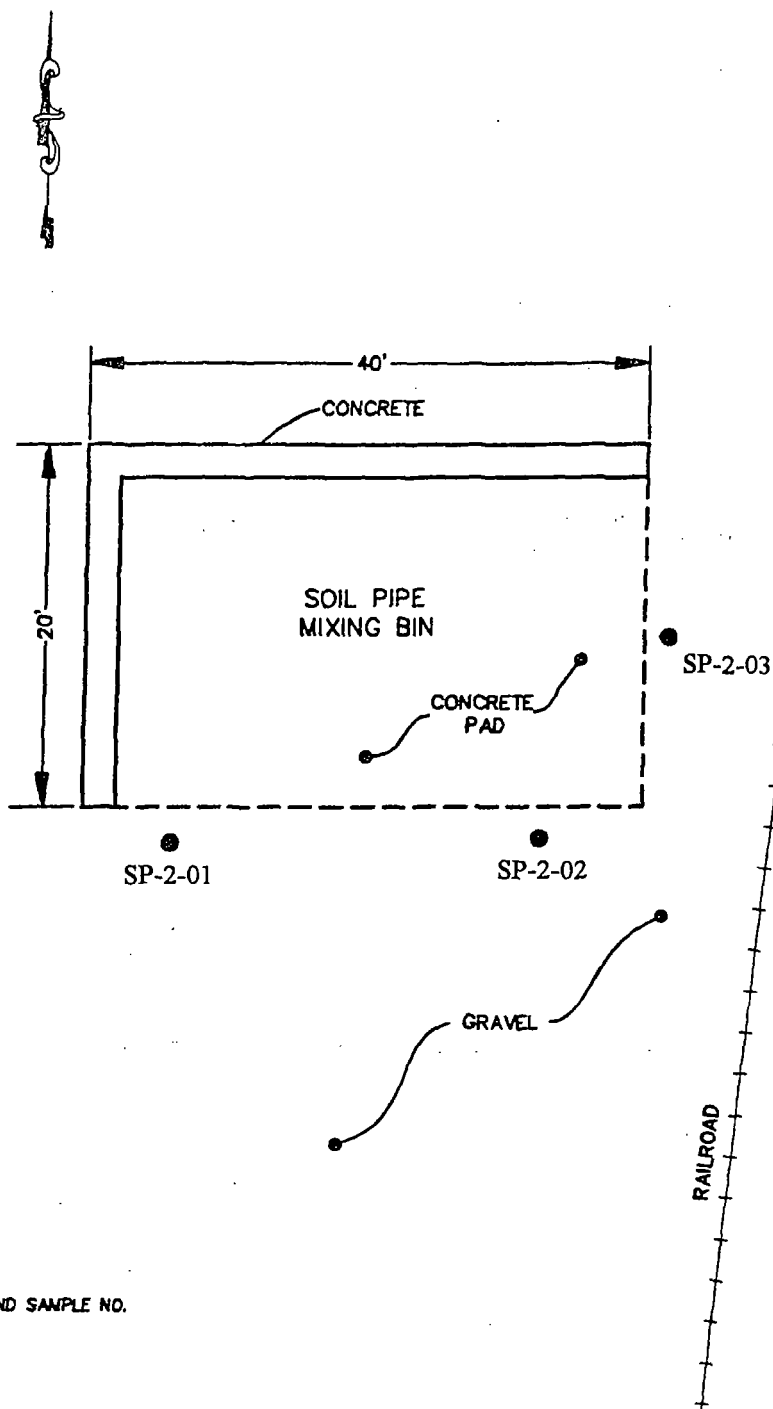
Attachments: 1. Figure 1 - Site Sketch  
2. Copy of Analytical Report



Printing on recycled paper

**OGDEN**  
■■■■■

MWPS002219



**LEGEND**

● SAMPLE LOCATIONS AND SAMPLE NO.  
SP-2-01

NOT TO SCALE

**OGDEN** ENVIRONMENTAL AND ENERGY SERVICES  
1000 COMMERCE PARK DRIVE • OAK RIDGE, TN 37830 • 815-481-8002

**FIGURE 1**  
**US PIPE AND FOUNDRY**  
**SOIL PIPE PLANT MIXING BIN**  
**SITE PLAN**  
CHATTANOOGA, TENNESSEE

OGDEN PROJECT # 042270400/0001  
FACILITY ID.# 3-330761

OPERATIONS  
**RECEIVED**  
 ANALYTICAL INDUSTRIAL RESEARCH LABORATORY  
 AUG 28 1995  
 OGDEN

LABORATORY SERVICES  
 4295 Cromwell Road, Suite 614  
 Chattanooga, Tennessee 37421-2177  
 (615) 894-8102

CONSULTATION

LAB. NO. : 950817-11858

CUSTOMER: 1311  
 OGDEN ENVIRONMENTAL & ENERGY  
 1009 COMMERCE PK DR #100  
 OAK RIDGE TN 37830

DATE RECD. : 08/17/95  
 SAMPLE DATE: 08/17/95

ATTENTION: JAMES ANNEAR  
 (615) 481-8002 FAX:  
 SAMPLE : US PIPE CHATTANOOGA, TN  
 : SP-2-01 SOIL

DATE REQUESTED :  
 CUST P.O.:

XX  
 ANALYSIS

				M.D.L.	Methods	Date	Initial
TCLP METALS:							
Cadmium .....	<0.100	mg/L		0.100	6010	08-23-95	JD
Lead .....	<0.500	mg/L		0.500	6010	08-23-95	JD
TCLP Phenols .....	<0.1	mg/L		0.1	8270	08-25-95	JJ
TCLP Cyanide .....	<0.02	mg/L	*	0.02	1312	08-23-95	PG
Toluene .....	<0.01	mg/Kg		0.01	8020	08-25-95	LG

\* Method 1312 Extraction Fluid #3

Notes:

XX  
 We hereby certify that the analytical procedures employed  
 are those approved by the Environmental Protection Agency or  
 other applicable methods for these analyses.

ANALYTICAL INDUSTRIAL RESEARCH LABORATORIES

By 

OPERATIONS

LABORATORY SERVICES

CONSULTATION

ANALYTICAL INDUSTRIAL RESEARCH LABORATORY

4295 Cromwell Road, Suite 614  
Chattanooga, Tennessee 37421-2177  
(615) 894-8102

LAB. NO.: 950817-11859

CUSTOMER: 1311

OGDEN ENVIRONMENTAL & ENERGY  
1009 COMMERCE PK DR #100  
OAK RIDGE TN 37830

DATE RECD. : 08/17/95

SAMPLE DATE: 08/17/95

ATTENTION: JAMES ANNEAR

(615) 481-8002 FAX:

DATE REQUESTED :

CUST P.O.:

SAMPLE : US PIPE CHATTANOOGA, TN

: SP-2-02 SOIL

XX

ANALYSIS

M.D.L. Methods Date Initial

TCLP METALS:

Cadmium .....	<0.100	mg/L	0.100	6010	08-23-95	JD
Lead .....	<0.500	mg/L	0.500	6010	08-23-95	JD

TCLP Phenols .....	<0.1	mg/L	0.1	8270	08-25-95	JJ
--------------------	------	------	-----	------	----------	----

TCLP Cyanide .....	<0.02	mg/L *	0.02	1312	08-23-95	PG
--------------------	-------	--------	------	------	----------	----

Toluene .....	<0.01	mg/Kg	0.01	8020	08-25-95	LG
---------------	-------	-------	------	------	----------	----

\* Method 1312 Extraction Fluid #3

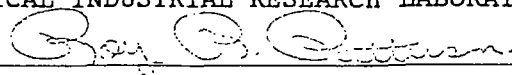
Notes:

XX

We hereby certify that the analytical procedures employed  
are those approved by the Environmental Protection Agency or  
other applicable methods for these analyses.

ANALYTICAL INDUSTRIAL RESEARCH LABORATORIES

By



MWPS002222

OPERATIONS

LABORATORY SERVICES

CONSULTATION

ANALYTICAL INDUSTRIAL RESEARCH LABORATORY

4295 Cromwell Road, Suite 614  
Chattanooga, Tennessee 37421-2177  
(615) 894-8102

LAB. NO. : 950817-11860

CUSTOMER: 1311

OGDEN ENVIRONMENTAL & ENERGY  
1009 COMMERCE PK DR #100  
OAK RIDGE TN 37830

DATE RECD. : 08/17/95

SAMPLE DATE: 08/17/95

ATTENTION: JAMES ANNEN

(615) 481-8002 FAX:

DATE REQUESTED :

CUST P.O.:

SAMPLE : US PIPE CHATTANOOGA, TN

: SP-2-03 SOIL

XX

ANALYSIS

M.D.L. Methods Date Initial

TCLP METALS:

Cadmium .....	<0.100	mg/L	0.100	6010	08-23-95	JD
Lead .....	0.654	mg/L	0.500	6010	08-23-95	JD

TCLP Phenols .....	<0.1	mg/L	0.1	8270	08-25-95	JJ
--------------------	------	------	-----	------	----------	----

TCLP Cyanide .....	<0.02	mg/L *	0.02	1312	08-23-95	PG
--------------------	-------	--------	------	------	----------	----

Toluene .....	<0.01	mg/Kg	0.01	8020	08-25-95	LG
---------------	-------	-------	------	------	----------	----

\* Method 1312 Extraction Fluid #3

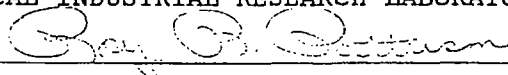
Notes:

XX

We hereby certify that the analytical procedures employed  
are those approved by the Environmental Protection Agency or  
other applicable methods for these analyses.

ANALYTICAL INDUSTRIAL RESEARCH LABORATORIES

By





ANALYTICAL INDUSTRIAL  
RESEARCH LABORATORIES, INC.  
4295 CROMWELL RD., SUITE 611  
CHATTANOOGA, TN 37421-2177

Report To:

Dgden  
Attn: Mr. James Annear  
1009 Commerce Park Dr, Suite 100  
Oak Ridge, TN 37830

Invoice To:

US Pipe  
Mr. Tim Book

## Chain of Custody Record

Page 1 of 1

PROJECT SITE <u>Chattanooga, TN</u>		PO#		NO. OF CONTAINERS	ANALYSES					PROJECT #		
SITE NAME <u>US PIPE</u>					<u>Cadmium, TCLP</u>	<u>Lead, TCLP</u>	<u>Phenol, TCLP</u>	<u>Cyanide, TCLP</u>	<u>Toluene</u>	DATE REPORT DUE		
COLLECTED BY (Signature) <u>Janet A. Lee</u>									VERBAL/FAX/HARDCOPY			
FIELD SAMPLE ID	RUSH FACTOR	SAMPLE	DATE/TIME							REMARKS	LAB ID NO. (for lab use only)	
SP-2-01		SOIL	8-17/1140	1	X	X	X	X	X			
SP-2-02		↓	8-17/1150	1	↓	↓	↓	↓	↓			
SP-2-03		↓	8-17/1200	1	↓	↓	↓	↓	↓			
REMARKS										RELINQUISHED BY: <u>Janet A. Lee</u>	DATE 8-17	TIME 1235
RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	

### LAB USE ONLY

RECEIVED FOR LAB BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION
<u>Janet A. Lee</u>	<u>8/17/05</u>	<u>12:35</u>							<u>Good</u>
REMARKS									

MWPS002224



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

JUN 26 1995

E.O. ENG.

JUN 30 1995

RECEIVED

4WD-RCRA

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. J. H. Watson  
Principal Environmental Engineer  
United States Pipe and Foundry Company  
3300 First Avenue North 35222  
P.O. Box 10406  
Birmingham, Alabama 35202

SUBJ: Closure Activities Report dated December 22, 1992  
Chattanooga Plant's Mixing Bins  
TND 07 489 3777 and TND 98 031 6301

Dear Mr. Watson:

The Environmental Protection Agency (EPA) Region 4 and the Tennessee Division of Solid Waste Management (TDSWM) has completed the review of U.S. Pipe and Foundry Company's Closure Activities Report dated December 22, 1992. In order to meet the terms of the Consent and Final Order between EPA and U.S. Pipe issued on December 12, 1990, U.S. Pipe must take additional soil samples in the traffic areas at the entrances to the two mixing bins. These additional samples should be taken at depths greater than four inches.

If you have any questions or comments regarding this letter, please contact, Kristin Lippert, at 404/347-3555 ext 6400.

Sincerely yours,

Jeaneanne M. Gettle  
Acting Chief  
RCRA Compliance Section

cc: Tom Tiesler, TDEC  
Al Frankes, TDEC

Copies to: (FYI)

W.E. Fleck  
Mike Keel  
Don Wallace  
John Pikciunas

Printed on Recycled Paper

MWPS002225

<p><b>SENDER:</b> Complete items 1 and 2 when additional services are desired and complete items 3 and 4.  Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.</p> <p>1. <input type="checkbox"/> Show to whom delivered date and addressee's address. (Extra charge)  2. <input type="checkbox"/> Restricted Delivery. (Extra charge)</p>	
<p>3. Article Addressed to:  Mr. J. E. Dickinson  RCRA Compliance Section  U. S. EPA Region 4  345 Courtland St., N. E.  Atlanta, GA 30365</p>	<p>4. Article Number:  P 471 393 308</p> <p>Type of Service:  <input type="checkbox"/> Registered <input type="checkbox"/> Insured  <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD  <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise</p> <p>Always obtain signature of addressee or agent and DATE DELIVERED</p>
<p>5. Signature - Address  X</p>	<p>8. Addressee's Address (ONLY if requested and fee paid)</p>
<p>6. Signature - Agent: <i>Charles Davis</i>  X</p>	
<p>7. Date of Delivery  MAR 8 - 1993</p>	
<p>PS Form 3811, Mar. 1988 • U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT</p>	

UNITED STATES POSTAL SERVICE  
OFFICIAL BUSINESS

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- Attach to front of article if space permits; otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.



PENALTY FOR PRIVATE  
USE: \$300

RETURN  
TO



Print Sender's name, address, and ZIP Code in the space below:

John Watson

United States Pipe & Foundry Co.

P. O. Box 10406

Birmingham, AL 35202





UNITED STATES PIPE AND FOUNDRY COMPANY

3300 FIRST AVENUE NORTH 35222

POST OFFICE BOX 10406

BIRMINGHAM, ALABAMA 35202

March 3, 1993

Mr. John E. Dickinson, P.E., Chief  
RCRA Compliance Section  
U. S. EPA, Region 4  
345 Courtland Street, N.E.  
Atlanta, GA 30365

RE: Chattanooga Plant's Mixing Bins  
TND07-489-3777 and TND98-031-6301  
"CAFO" of December 12, 1990  
RCRA Docket No. 89-28-R

Dear Mr. Dickinson:

In compliance with Section E of the subject final order, please find attached a copy of the "Closure Activities Report," dated December 22, 1992, which was prepared by our Consultant, Ogden Environmental and Energy Services Co., Inc. ("Ogden"). This report describes the field activities and analytical results from sampling around the subject mixing bins. Please note Ogden's "Conclusions and Recommendations" contained on page 8 of the report, which basically state that neither plant's mixing bin area contained residual hazardous waste and no further action is deemed necessary.

As a result of EPA's letters of April 6 and September 18, 1992 to Mr. Tom Tiesler, Tennessee DSWM, Ogden's report was submitted to Mr. Ronnie Bowers of the DSWM's Corrective Action Unit on January 13, 1993. The report has been reviewed by Mr. Bowers and his staff, and in a March 1, 1993 phone conversation, Mr. Bowers advised us that he was unaware of any provision under DSWM's regulations which would permit them to sign-off on this report as having met the terms of the "CAFO" between EPA and U. S. Pipe. Therefore, since this order was negotiated between EPA and U. S. Pipe, and it is our belief that U. S. Pipe has complied with its terms relative to the mixing bins (Sections C, D, & E inclusive), we will henceforth consider this matter closed unless advised otherwise.

Yours truly,

UNITED STATES PIPE AND FOUNDRY COMPANY

A handwritten signature in cursive script, reading "J. H. Watson".

J. H. Watson  
Principal Environmental Engineer

JHW/sd

Attachment

cc/Mr. Ronnie Bowers, DSWM  
Mr. W. A. Berry  
Mr. J. Pikciunas  
J. C. Wright, Esq.

MWPS002228

bcc/Messrs. D. R. Wedell  
W. E. Fleck  
J. R. Walker  
D. C. Wallace  
J. L. Smallwood  
H. G. Reynolds

<p><b>SENDER:</b> Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.</p> <p>Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.</p> <p>1. <input type="checkbox"/> Show to whom delivered, date, and addressee's address. 2. <input type="checkbox"/> Restricted Delivery (Extra charge)</p>	
<p>3. Article Addressed to:</p> <p>Mr. Ronnie Bowers Tennessee Dept. of Environment and Conservation 5th Floor, L&amp;C Tower 401 Church Street Nashville, Tennessee 37243-153</p>	<p>4. Article Number</p> <p>P 474 393 309</p>
<p>Type of Service:</p> <p><input type="checkbox"/> Registered <input type="checkbox"/> Insured  <input type="checkbox"/> Certified <input type="checkbox"/> COD  <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise</p>	
<p>Always obtain signature of addressee or agent and DATE DELIVERED.</p>	
<p>5. Signature - Addressee</p> <p>X</p>	<p>8. Addressee's Address (ONLY if requested and fee paid)</p>
<p>6. Signature - Agent</p> <p>X 1-19-93</p>	
<p>7. Date of Delivery</p> <p>1-19-93</p>	
<p>PS Form 3811, Mar. 1988 • U.S. G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT</p>	

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  3. Endorse article "Return Receipt Requested" adjacent to number.



PENALTY FOR PRIVATE  
USE: \$300

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TO



Print Sender's name, address, and ZIP Code in the space below.

Mr. J. H. Watson

United States Pipe and Foundry Co.

P. O. Box 10406

Birmingham, AL 35202



FILE



UNITED STATES PIPE AND FOUNDRY COMPANY

3300 FIRST AVENUE NORTH 35222

POST OFFICE BOX 10406

BIRMINGHAM, ALABAMA 35202

*Cert. Mail - RRR*

January 13, 1993

Mr. Ronnie Bowers  
Environmental Specialist  
Corrective Action Unit - DSWM  
Tennessee Dept. of Environment and Conservation  
5th Floor, L&C Tower  
401 Church Street  
Nashville, Tennessee 37243-1535

Re: Chattanooga Plant's Mixing Bins  
TND 07-489-3777 and TND 98-031-6301

Dear Mr. Bowers:

Following our phone conversation last fall, we had our consultant, Ogden Environmental and Energy Services Co., Inc. ("Ogden"), proceed with the soil sampling and analysis plan contained in the proposed closure activities plan of January 1991. Please find attached two copies of the completed "Closure Activities Report," dated December 22, 1992, describing the field activities and analytical results from sampling around the subject mixing bins. Please note Ogden's "Conclusions and Recommendations" contained on page 8 of the report, which basically state that neither plant's mixing bin area contained residual hazardous waste and no further action is required.

Ronnie, following your review of this report, let's discuss it at your convenience and see if we cannot put this issue behind us.

Yours truly,

UNITED STATES PIPE AND FOUNDRY COMPANY

A handwritten signature in cursive script that reads "John H. Watson".

John H. Watson  
Principal Environmental Engineer

JHW/js

Encls.

cc: Mr. W. A. Berry  
Mr. John Pikciunas  
Mr. J. Smallwood  
Mr. Charles Priddy

bc: Mr. D. R. Wedell  
Mr. W. E. Fleck  
Mr. J. R. Walker  
Mr. D. C. Wallace

MWPS002232

## UNITED STATES PIPE AND FOUNDRY COMPANY

3300 FIRST AVENUE NORTH 35222

POST OFFICE BOX 10406

BIRMINGHAM, ALABAMA 35202

## FACSIMILE TRANSMISSION

DATE: 9-24-92TIME: 2:30 ~~AM~~/PMFROM: John Watson

PHONE: \_\_\_\_\_

THIS FACSIMILE MESSAGE IS BEING TRANSMITTED TO THE FOLLOWING DESTINATIONS:

TO: <u>Jim Wright, Esq.</u> BUSINESS PHONE NO.: _____ FAX NO.: <u>(615) 637-3385</u>	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____
TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____
TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____

MESSAGE: Per our recent conversation, see attch.  
letter from EPA!TOTAL NUMBER OF PAGES INCLUDING THIS COVER SHEET: 3

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL THE SENDER AT THE NUMBER SHOWN ABOVE.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

*Jim Wright*

SEP 18 1992

Rec. 9-23-92

4WD-RCRA

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Environment  
and Conservation  
701 Broadway  
Customs House, 4th Floor  
Nashville, Tennessee 37243-1535

Re: U.S. Pipe & Foundry  
EPA ID Number TND 074 873 777

*CSP & CVF Mixing Bins!*

Dear Mr. Tiesler:

This letter is to clarify a previous letter EPA sent to you on April 6, 1992, in regard to the closure activity report submitted by U.S. Pipe & Foundry in response to a Consent Agreement and Final Order ("CAFO") entered into between U.S. Pipe and EPA on December 12, 1990.

In the April 6, 1992, letter, EPA referred to the submittal by U.S. Pipe as a "closure plan." However, the CAFO (copy enclosed) does not specifically ask for a closure plan. Instead, the CAFO requires, among other things, the following:

- A groundwater monitoring plan for the landfill [see CAFO at page 4, paragraph B].
- A written report of the activities performed in the past for closure of the waste piles (former mixing bins) [CAFO at page 4, paragraph C-1].
- A plan describing the activities to be conducted to determine whether or not all waste and contaminated materials were removed during the activities described in paragraph C-1 [see CAFO at page 4, paragraph C-2], and implementation of such plan after EPA approval [CAFO at page 4, paragraph D].

In addition, the groundwater monitoring plan required by the CAFO shall include, at a minimum, the installation of two additional downgradient wells and a sampling and analysis plan. It is the responsibility of the approving agency to determine if additional requirements are needed.

EPA requested that the Division of Solid Waste Management be the lead agency for reviewing and approving submissions required by the CAFO. EPA is concerned that the requirements of the CAFO are met, and any additional requirements imposed by the Division must be resolved between U.S. Pipe and the Division.

I apologize for any inconvenience you may have encountered regarding the CAFO requirements, and hope this clarification resolves your questions. If you have additional questions or comments, please contact Judy Marshall at (404) 347-7603.

Sincerely yours,

*John E. Lichner (for)*  
G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

Enclosure

cc: John H. Watson, U.S. Pipe & Foundry  
Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY/TN Unit

Copies to (FYI)

Messrs. Wedell  
Fleck  
Walker  
Berry  
Pikciunas  
Wallace  
Gerre Reynolds  
Jim Wright (Knox)✓

Note:

9-24-92 This letter was discussed in a phone conversation with Ronnie Bowers (DSWM) morning of 9-23-92. Since he had not received his copy, I read our copy to him. I again asked if we could proceed with our sampling plan proposed in January 1991; however, he suggested that we hold off until he reviewed this letter with Tom Tiesler. Since Bowers was to be out of the office that afternoon and for the rest of the week, he was to schedule a meeting with Tiesler for Monday, September 28, to discuss the issues, following which he will advise us on how to proceed. Copy of this letter is being sent to Jim Wright in case the DSWM decides to impose any "additional requirements," since, at the time we signed the consent agreement, DSWM agreed with us that Cupola Baghouse Dust was exempted from hazardous waste regulations.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

SEP 18 1992

Rec. 9-23-92

4WD-RCRA

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Environment  
and Conservation  
701 Broadway  
Customs House, 4th Floor  
Nashville, Tennessee 37243-1535

Re: U.S. Pipe & Foundry  
EPA ID Number TND 074 873 777

CSP & CVF Mixing Bins!

Dear Mr. Tiesler:

This letter is to clarify a previous letter EPA sent to you on April 6, 1992, in regard to the closure activity report submitted by U.S. Pipe & Foundry in response to a Consent Agreement and Final Order ("CAFO") entered into between U.S. Pipe and EPA on December 12, 1990.

In the April 6, 1992, letter, EPA referred to the submittal by U.S. Pipe as a "closure plan." However, the CAFO (copy enclosed) does not specifically ask for a closure plan. Instead, the CAFO requires, among other things, the following:

- A groundwater monitoring plan for the landfill [see CAFO at page 4, paragraph B].
- A written report of the activities performed in the past for closure of the waste piles (former mixing bins) [CAFO at page 4, paragraph C-1].
- A plan describing the activities to be conducted to determine whether or not all waste and contaminated materials were removed during the activities described in paragraph C-1 [see CAFO at page 4, paragraph C-2], and implementation of such plan after EPA approval [CAFO at page 4, paragraph D].

In addition, the groundwater monitoring plan required by the CAFO shall include, at a minimum, the installation of two additional downgradient wells and a sampling and analysis plan. It is the responsibility of the approving agency to determine if additional requirements are needed.

EPA requested that the Division of Solid Waste Management be the lead agency for reviewing and approving submissions required by the CAFO. EPA is concerned that the requirements of the CAFO are met, and any additional requirements imposed by the Division must be resolved between U.S. Pipe and the Division.

I apologize for any inconvenience you may have encountered regarding the CAFO requirements, and hope this clarification resolves your questions. If you have additional questions or comments, please contact Judy Marshall at (404) 347-7603.

Sincerely yours,

*John E. Wickham (for)*  
G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

Enclosure

cc: John H. Watson, U.S. Pipe & Foundry  
Ronnie Bowers, Corrective Action Unit, TDEC  
Wayne Garfinkel, Chief, KY/TN Unit

Copies to (FYI)

Messrs. Wedell  
Fleck  
Walker  
Berry  
Pikciunas  
Wallace  
Gerre Reynolds  
Jim Wright (Knox)

Note:

9-24-92 This letter was discussed in a phone conversation with Ronnie Bowers (DSWM) morning of 9-23-92. Since he had not received his copy, I read our copy to him. I again asked if we could proceed with our sampling plan proposed in January 1991; however, he suggested that we hold off until he reviewed this letter with Tom Tiesler. Since Bowers was to be out of the office that afternoon and for the rest of the week, he was to schedule a meeting with Tiesler for Monday, September 28, to discuss the issues, following which he will advise us on how to proceed. Copy of this letter is being sent to Jim Wright in case the DSWM decides to impose any "additional requirements," since, at the time we signed the consent agreement, DSWM agreed with us that Cupola Baghouse Dust was exempted from hazardous waste regulations.

## UNITED STATES PIPE AND FOUNDRY COMPANY

3300 FIRST AVENUE NORTH 35222

POST OFFICE BOX 10406

BIRMINGHAM, ALABAMA 35202

## FACSIMILE TRANSMISSION

DATE: 10-15-92TIME: 3:00 ~~AM~~ PMFROM: John Watson

PHONE: \_\_\_\_\_

THIS FACSIMILE MESSAGE IS BEING TRANSMITTED TO THE FOLLOWING DESTINATIONS:

TO: <u>Chuck Priddy, Jr. ✓</u> BUSINESS PHONE NO.: <u>Ogden Env.</u> FAX NO.: <u>(615) 966-4155</u>	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____
TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____
TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____	TO: _____ BUSINESS PHONE NO.: _____ FAX NO.: _____

MESSAGE: Chuck, per our discussion, attached is EPA's  
letter of Sep 18, 92 to Tiesler!

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TOTAL NUMBER OF PAGES INCLUDING THIS COVER SHEET: 3

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL THE SENDER AT THE NUMBER SHOWN ABOVE.

*Chatt. Plants - Final C.O.*

**POWELL, GOLDSTEIN, FRAZER & MURPHY**

ATTORNEYS AT LAW

SUITE 800  
900 CIRCLE 75 PARKWAY  
ATLANTA, GEORGIA 30339  
404 951-5600

SIXTH FLOOR  
1001 PENNSYLVANIA AVENUE, N.W.  
WASHINGTON, D.C. 20004  
202 347-0066

SUITE 1050  
400 PERIMETER CENTER TERRACE  
ATLANTA, GEORGIA 30346

404 399-2800  
TELEX 4611818  
PGFM TER  
TELECOPIER 404 399-2879

ELEVENTH FLOOR  
THE CITIZENS & SOUTHERN NATIONAL BANK BUILDING  
35 BROAD STREET, N.W.  
ATLANTA, GEORGIA 30335  
404 572-6600

December 14, 1990

*Copies to: ✓*

*W.E. Fleck  
Wayne Berry  
Jim Smallwood*

H. Gerald Reynolds, Esquire  
Environmental Counsel  
Walter Industries, Inc.  
1500 North Dale Mabry Highway  
Tampa, Florida 33607

Re: U.S. Pipe and Foundry Company;  
Consent Agreement and Final Order - *Signed by EPA on Dec. 12, 90!*

Dear Gerre:

I enclose a copy of the Consent Agreement and Final Order in the Chattanooga matter. I understand from Bill Lapidus that U.S. Pipe has retained a consultant to perform the actions specified on pages 4 and 5 of the document. Please let me know if you would like me to assist in this effort.

Sincerely,

*[Signature]*  
James D. Levine

JDL/t1  
Enclosure  
01330711

cc: William D. Vines, II, Esq. (w/enclosure)  
James C. Wright, Esq. (w/enclosure)  
Mr. Don Wallace (w/enclosure)  
Mr. John Watson (w/enclosure) ✓

*J. ENG.*  
DEC 17 1990  
RECEIVED

MWPS002239



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

4RC

*Dec. ?*  
~~November~~ 13, 1990

The Honorable Frank W. Vanderheyden  
Administrative Law Judge  
U.S. Environmental Protection Agency  
401 M Street S.W.  
Mail Code A-110  
Washington, D.C. 20460

Re: U.S. Pipe and Foundry Company  
RCRA Docket No. 89-28-R  
Final Consent Agreement

Dear Judge Vanderheyden:

Enclosed please find a copy of the final Consent Agreement for the above referenced action. The original and a copy have been filed with the hearing clerk and another copy was sent to the Respondent. Please let me know if you need any additional information.

Sincerely,

*Catherine Winokur*  
Catherine Winokur  
Assistant Regional Counsel  
Counsel for Complainant

Enclosure

MWPS002240



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

4RC

December 13, 1990

Mr. James Levine, Esq.  
Powell, Goldstein, Frazer & Murphy  
Suite 1050  
400 Perimeter Center Terrace  
Atlanta, Georgia 30346

Re: U.S. Pipe and Foundry Company, Chattanooga, Tennessee; RCRA  
Docket no. 89-28-R

Dear Jim:

Enclosed is an executed copy of the Consent Agreement and Final Order in the above matter. I am pleased that we could come to a mutually agreeable resolution of the case. Please call me if you have any questions.

Sincerely,

A handwritten signature in cursive script, reading "Catherine Winokur".

Catherine Winokur  
Assistant Regional Counsel  
Enclosure

MWPS002241

CERTIFICATE OF SERVICE


I hereby certify that the original of the within Status Report was hand-delivered to the Regional Hearing Clerk and true and correct copies were mailed to the Honorable Frank W. Vanderheyden, Administrative Law Judge, U.S. Environmental Protection Agency, 401 M. Street S.W., Mail Code A-110, Washington, D.C.; and to:

James D. Levine, Esq.  
Powell, Goldstein, Frazer & Murphy  
Suite 1050  
400 Perimeter Center Terrace  
Atlanta, Georgia 30346

William D. Vines, III  
Butler, Vines, Babb & Threadgill  
Suite 810, First American Center  
Knoxville, Tennessee 37902

James C. Wright  
Butler, Vines, Babb & Threadgill  
Suite 810, First American Center  
Knoxville, Tennessee 37902

This 13th day of December 1990



Mary Walker  
Legal Clerk  
U.S. EPA-Region IV

UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
BEFORE THE ADMINISTRATOR

IN THE MATTER OF	)	
	)	
U.S. PIPE AND FOUNDRY	)	
Chattanooga, Tennessee	)	RCRA Docket No. 89-28-R
	)	
Respondent.	)	
_____	)	

CONSENT AGREEMENT AND FINAL ORDER

A Complaint and Compliance Order was issued pursuant to 3008(a)(1) of the Resource Conservation and Recovery Act (RCRA) as amended, 42, U.S.C. § 6928 (a)(1), and pursuant to the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties and the Revocation or Suspension of Permits found at 40 C.F.R. § 22. The Complainant is the Director, Waste Management Division, Region IV, United States Environmental Protection Agency (Complainant or EPA). The Respondent is U.S. Pipe and Foundry (Respondent) a company doing business in Chattanooga, Tennessee.

Complainant and Respondent have conferred for the purpose of settlement pursuant to 40 C.F.R. § 22.18, and Complainant and Respondent desire to resolve and settle this action. Accordingly, before any testimony has been taken upon the pleadings, and without adjudication of any issue of fact or law herein, and with Respondent denying Complainant's allegations, findings of fact and conclusions of law except as expressly agreed herein, the parties hereby stipulate and agree as follows:

Preliminary Statements

1. Respondent has been served with a copy of the Complaint and Compliance Order, issued on July 24, 1989, together with a Notice of Opportunity for hearing in the matter and admits for purposes of this proceeding only, that the Regional Administrator has jurisdiction over this matter pursuant to RCRA § 3008, 42 U.S.C. § 6928.

2. Respondent is a corporation doing business in the State of Tennessee and is a person as defined by Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15). On December 29, 1989, Respondent filed a Notice of Case under Chapter 11 of the United States Bankruptcy Code.

3. Respondent owns and operates one foundry facility in Chattanooga, Tennessee. One of the solid wastes generated at this facility is the cupola fly ash that is collected at the baghouse collectors. EPA alleges such fly ash to be a hazardous waste as defined in RCRA § 1004(5), 42 U.S.C. § 6903(5), Tennessee Rule (TR) 1200-1-11.02(2) and 40 CFR 260.10.

4. In January 1989, pursuant to an agreement with the Tennessee Department of Solid Waste Management, Respondent installed a fixation system for the treatment of the fly ash. Respondent alleges that before this treatment system was installed, the fly ash was mixed with other process wastes in accumulation areas or bins before being transported to the

facility landfill. EPA alleges that these areas are waste piles where hazardous waste was treated and therefore subject to regulation under RCRA. Respondent specifically denies this allegation.

5. EPA alleges that Respondent failed to submit to EPA, in a timely manner, a notification of hazardous waste activity pursuant to RCRA § 3010(a), 42 U.S.C. § 6930, and Part A of its hazardous waste permit application pursuant to RCRA § 3005(e), 42 U.S.C. § 6925(e). EPA has determined that Respondent is nonetheless, subject to TR 1200-1-11-.05 and 40 CFR 265 as required by TR 12200-1-11-.05 (1)(b) 1 and 40 CFR 265.1(b).

6. Based on information received after the Complaint was issued, including results of an EPA inspection on April 18, 1989, and correspondence concerning treatment of the fly ash at the waste piles, Complainant alleges that Respondent violated all or portions of:

- a) 40 CFR 265, Subparts A, B, and L by its failure to obtain a permit for treatment of hazardous waste, develop and implement a waste analysis plan, develop and follow a written inspection schedule, maintain an operating log, and provide training on waste management procedures,
- b) 40 CFR 265, Subpart G and H by its failure to have a written closure plan, develop a cost estimate for closure and its failure to submit financial assurance instruments to cover the cost of closure and its failure

to demonstrate liability insurance coverage for sudden accidental occurrences.

FINAL ORDER

Based on the foregoing stipulations, the parties agree to the entry of the following Final Order in this matter:

A. Respondent agrees to the entry of the following Order and waives its right to a hearing in this proceeding on any question of law or fact raised by the allegations contained in the Complaint and Compliance Order.

B. Within thirty (30) days of the effective date of this Consent Agreement and Final Order, Respondent shall submit a groundwater monitoring plan for the landfill. At a minimum, this plan shall include the installation of two additional downgradient wells and a Sampling and Analysis Plan that meets TR 1200-1-11-.05(6)c.

C. Within thirty (30) days of the effective date of this Consent Agreement and Final Order, Respondent shall submit:

1. A written report of the activities performed in the past, for closure of the waste piles.

2. A plan describing the activities to be conducted to determine whether or not all waste and contaminated materials were removed during the activities described in paragraph C.1. This plan shall include an implementation schedule.

D. Within thirty (30) days after receiving EPA's approval of the Plan submitted pursuant to paragraph C.2., Respondent shall initiate implementation of such plan as approved.

E. Within thirty (30) days after completion of the plan, Respondent shall submit:

1. A certification that the plan has been implemented as approved.

2. A report describing the conditions of the closed units including analytical data to determine if all waste residue has been removed from the units.

F. Within sixty (60) days after receipt of the report, EPA shall inform Respondent, whether a post closure permit application is needed for the waste piles.

? — G. All reports required by this Consent Agreement will include a certification statement signed by Respondent or its responsible officials assuring that the information contained in the report is true, accurate and complete.

H. Any person that knowingly and willfully submits to EPA, any report or document containing false or fraudulent information or that uses any false writing or document knowing the same contains fictitious or fraudulent statements or entries may be subject to the penalties provided in 18 U.S.C. Section 1001.

I. Respondent shall submit documents required by this Consent Agreement and Final Order to:

James H. Scarbrough, P.E. Chief  
RCRA & Federal Facilities Branch  
U.S. EPA Region IV  
345 Courtland Street, N.E.  
Atlanta, GA 30365

Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health and Environment  
Custom House  
701 Broadway  
Nashville, TN 37219

J. Notwithstanding any other provisions of this Consent Agreement and Final Order, an enforcement action could be brought pursuant to § 7003 of RCRA, 42 U.S.C. § 6923 or other statutory authority, should the EPA find that the handling, storage, treatment, transportation or disposal of solid waste or hazardous waste at the facility may present an imminent and substantial endangerment to human health or the environment. Respondent reserves any rights it may have to contest such an action.

K. Nothing contained in this Agreement shall prohibit the EPA from taking any action pursuant to 3008(h) of RCRA or any other applicable provision of 42 USC Section 6901 et seq., as amended. Respondent reserves any rights it may have to contest such an action.

L. Further, this Agreement and Final Order shall not under any circumstances constitute evidence of or be considered as an admission by Respondent of any wrongdoing or violation of law or breach of duty in any case, cause, controversy or court of law or equity, nor be used for any purposes whatsoever except in a proceeding to enforce the terms and conditions of this Agreement and Final Order.

M. The parties agree that settlement of this matter is in the public interest and fully complies with the requirements of RCRA. Compliance with the terms of this Consent Agreement and Final Order fully resolves all issues and controversies as described in the allegations of the Complaint and herein.

EFFECTIVE DATE

The effective date of this Consent Agreement and Order shall be the date it is approved by the Regional Administrator.

Agreed to this 5th day of December, 1990.

United States Pipe and Foundry  
Respondent

By : William E. Fluk

Title: Vice President-Manufacturing

Agreed to this 5th day of December, 1990.

\_\_\_\_\_  
Complainant

for James H. Lenthough

Donald J. Guinyard  
Acting Director, Waste Management Division  
U.S. Environmental Protection Agency  
Region IV

It being AGREED it is so ORDERED this 12th day  
of December, 1990.

Greer C. Tidwell, Acting  
Greer C. Tidwell  
Regional Administrator

01/10/91

12:28

NO. 545

P001



**ERC/EDGE**  
**Environmental**  
**and Energy**  
**Services Co.**



725 PELLISSIPPI PARKWAY  
P.O. BOX 22879  
KNOXVILLE, TN 37933-0879  
615/966-9761 - Phone  
615/966-4155 - Fax

## TELECOPY COVER LETTER

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: John Watson  
FIRM: US Pipe  
CITY: \_\_\_\_\_  
FAX NO. 205-254-7494  
Closure Plan - Mixing Bins

SENDER:

NAME: Tim Lee - FILE  
DATE: 1-10-91

MESSAGE: Revision  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total number of pages 22, including this cover page.

If all pages are not received, please notify the sender.

CONTACT PERSON: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_

Note: Discussed additional needed corrections  
1-10-91 with Tim Lee this date & time.  
1:45 PM Final reports to go out tomorrow! - OK✓

MWPS002250

**U.S. PIPE & FOUNDRY  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
P.O. Box 311  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**



U.S. PIPE & FOUNDRY FACILITY  
CHATTANOOGA, TENNESSEE  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
ERCE # D538-003

This report provides a description of the closure activities at the Fly Ash Mixing/Accumulation Bins at the U.S. Pipe & Foundry (USP) Facility located along the Tennessee River in a heavily industrial area of northwestern Chattanooga (Figure 1).

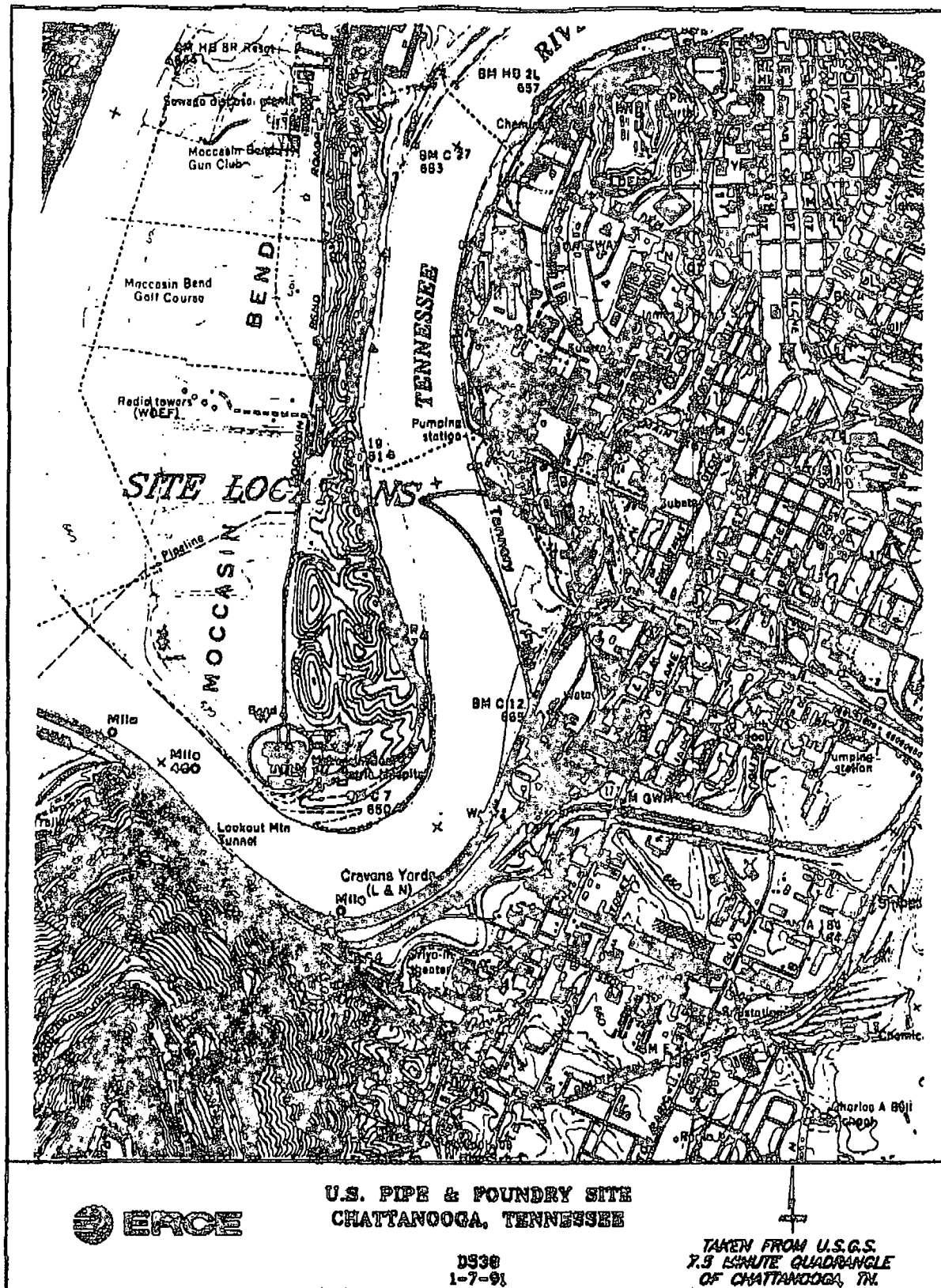
**BACKGROUND**

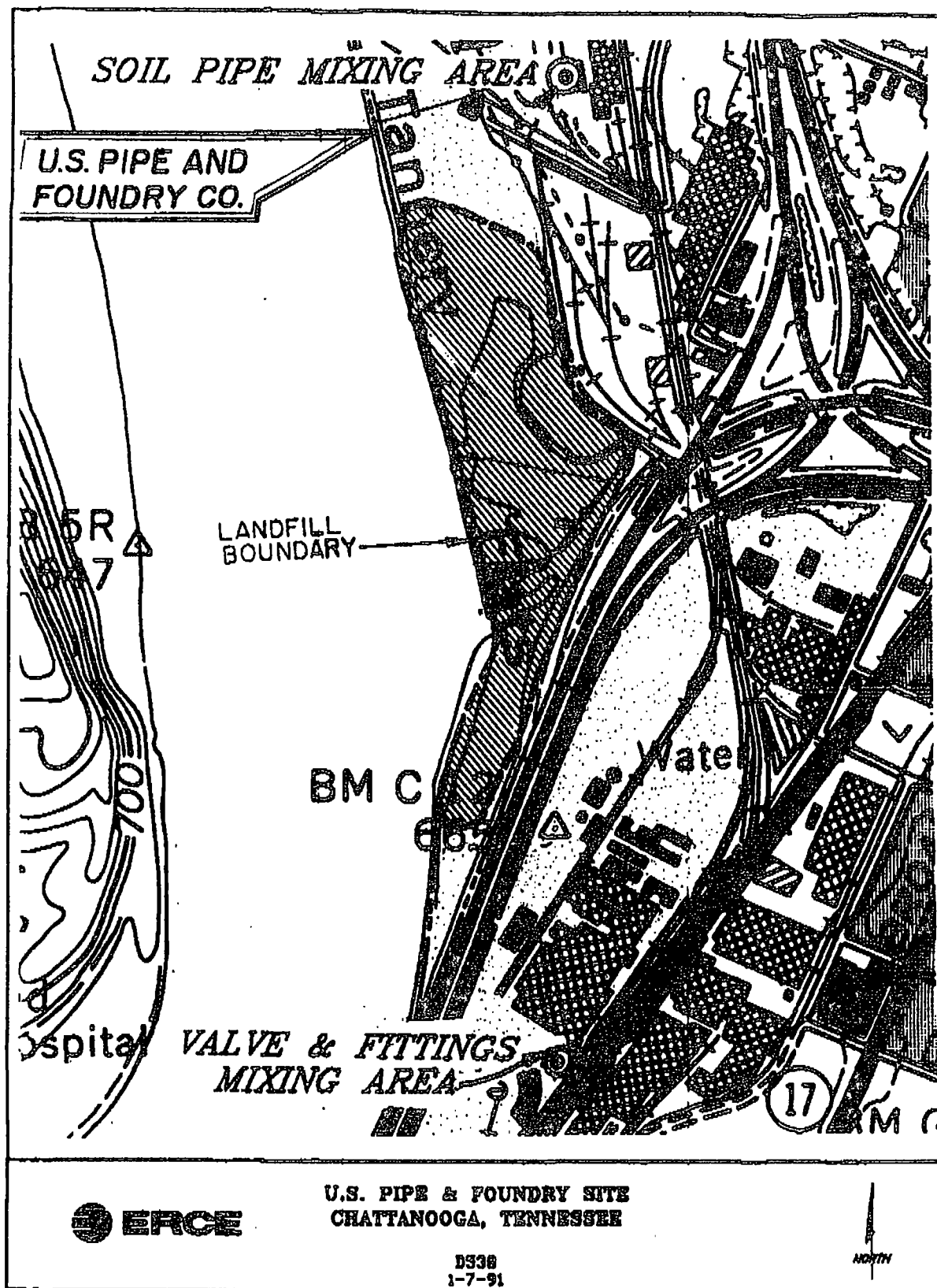
There were two manufacturing units of the subject site, consisting of the USP Soil Pipe Plant (ceased operation in May 1990) and the USP Valve and Fittings Unit. Both units were in close proximity to one another and consisted of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. Both units deposited solid waste into the landfill. One of the solid wastes generated at this facility is the cupola fly ash collected at the baghouse collectors.

Various solid waste, including the baghouse dust and fly ash were blended/mixed on concrete pads prior to being deposited in the landfill. One pad served the Soil Pipe unit and one served the Valve and Fittings unit. Figure 2 shows the locations of the two mixing areas.

The mixing pad that served the Valve and Fittings unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 30 feet in plan dimensions. No significant cracking or degradation of the pad was observed.

The pad which served the Soil Pipe unit is a concrete slab with concrete walls on two sides, approximately 20 feet by 20 feet in





plan dimensions. Similarly, this pad also appeared competent, as no indications of significant degradation was observed.

Subsequent to this <sup>installation</sup> ~~operation~~, the bins were "closed" to the mixing of the ~~capsule baghouse~~ <sup>cupola fly ash</sup> waste. However, the concrete bins continued to be used for mixing of other solid waste.

#### CLOSURE

In January, 1989, U.S. Pipe & Foundry initiated operation of a fly ash fixation system for the treatment of the fly ash from both plants. Closure of these mixing pads consisted of removing all solid waste using front end loaders and small earth moving equipment.

#### SAMPLING PLAN

Six samples will be collected from each of the concrete pads at the approximate locations shown by Figures 3 and 4. Four of the samples will be collected from sediment/waste remaining on the waste pads, such as at the contact of the vertical walls and floor. Furthermore, two samples will be collected from the gravel surface at the perimeter of the concrete pads. Samples will be analyzed for the analysts shown by Table 1, using Toxicity Characteristic Leaching Procedure (TCLP).

#### SCHEDULE

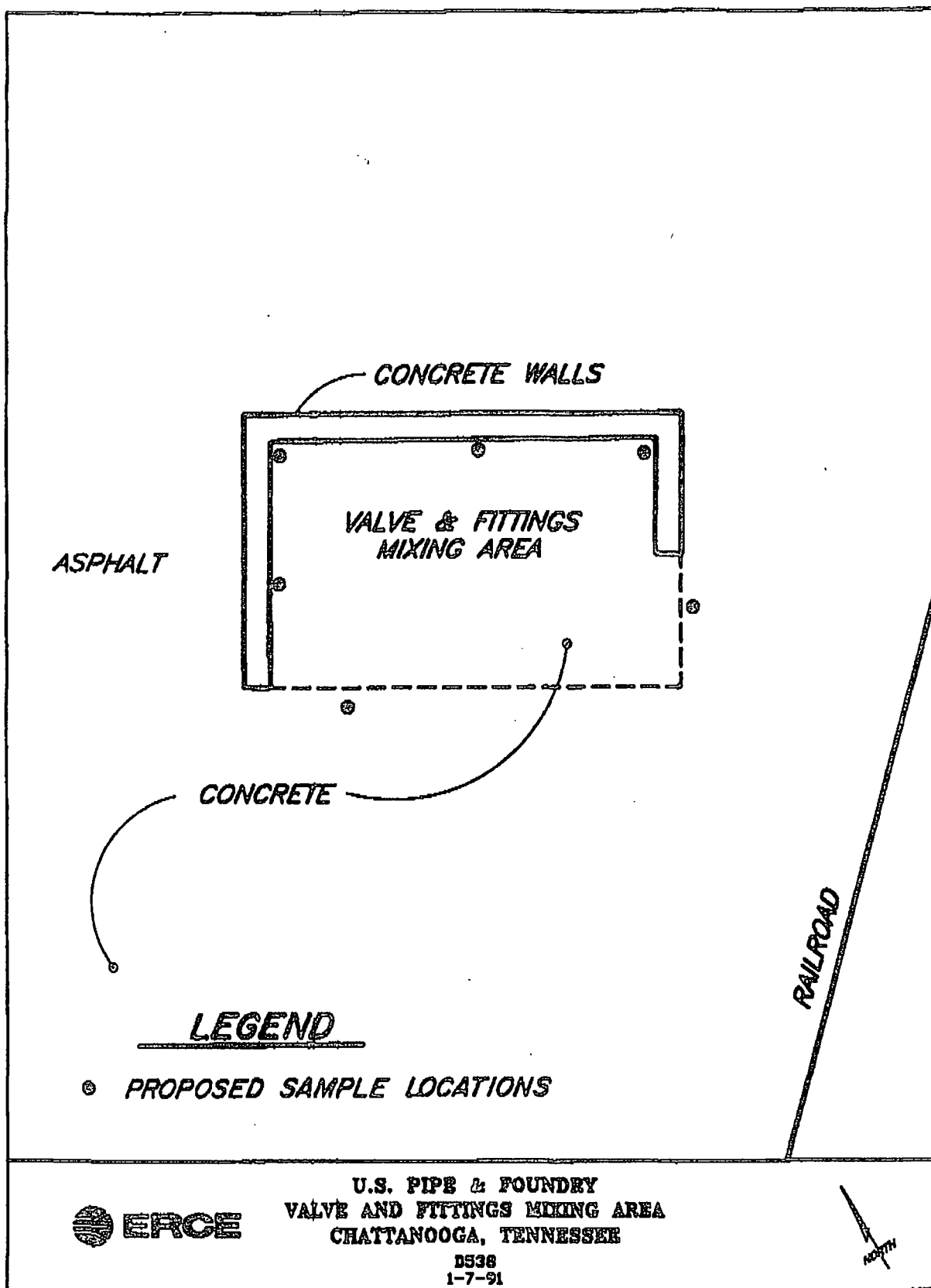
The proposed schedule for conducting the field sampling, analysis of samples and issuing a summary report is shown by Figure 5.

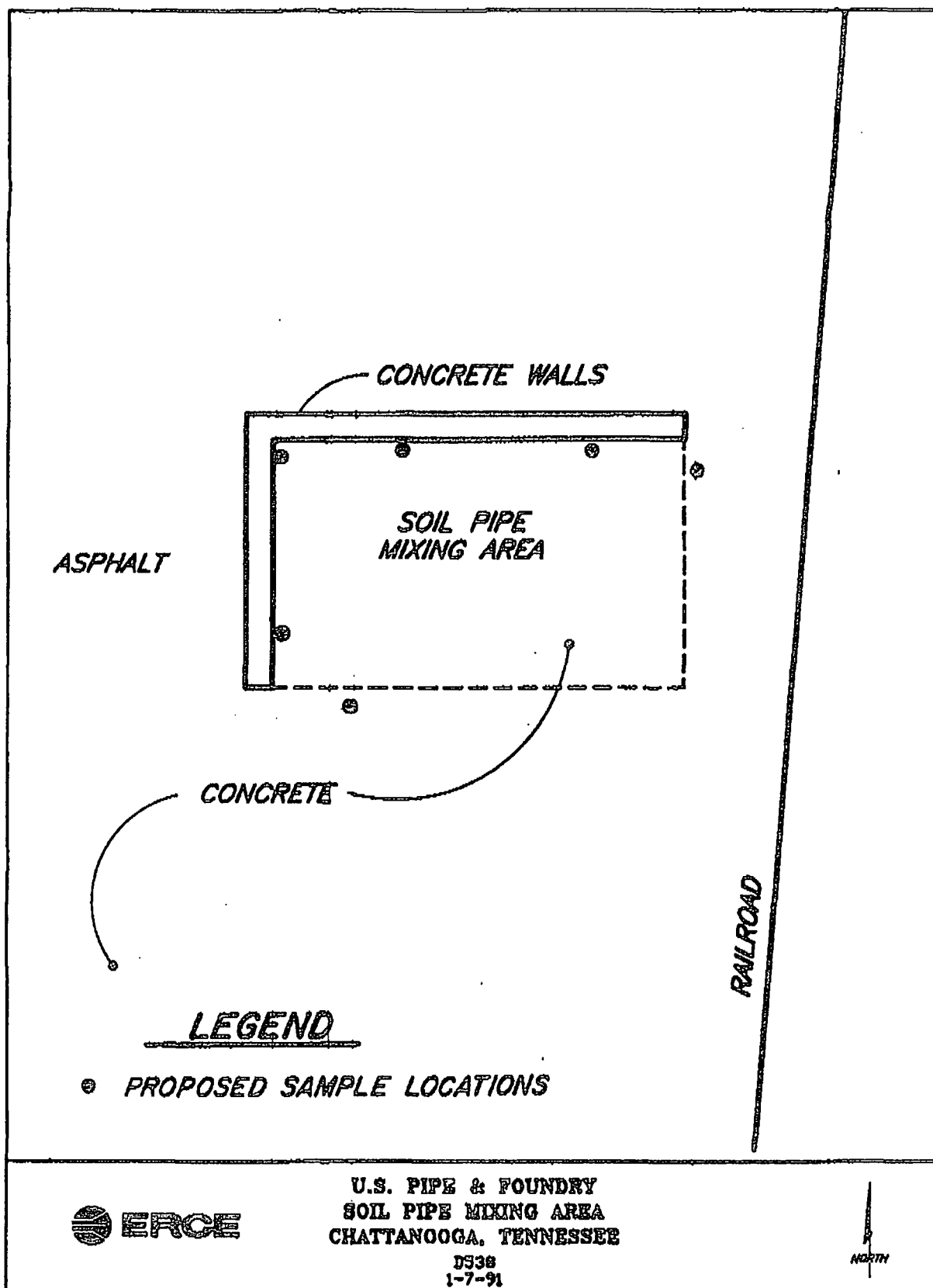
Table 1 ✓

U. S. Pipe & Foundry Facility  
Proposed Analysis Parameters  
for Soil Samples Collected at the  
Fly Ash Mixing/Accumulation Bins

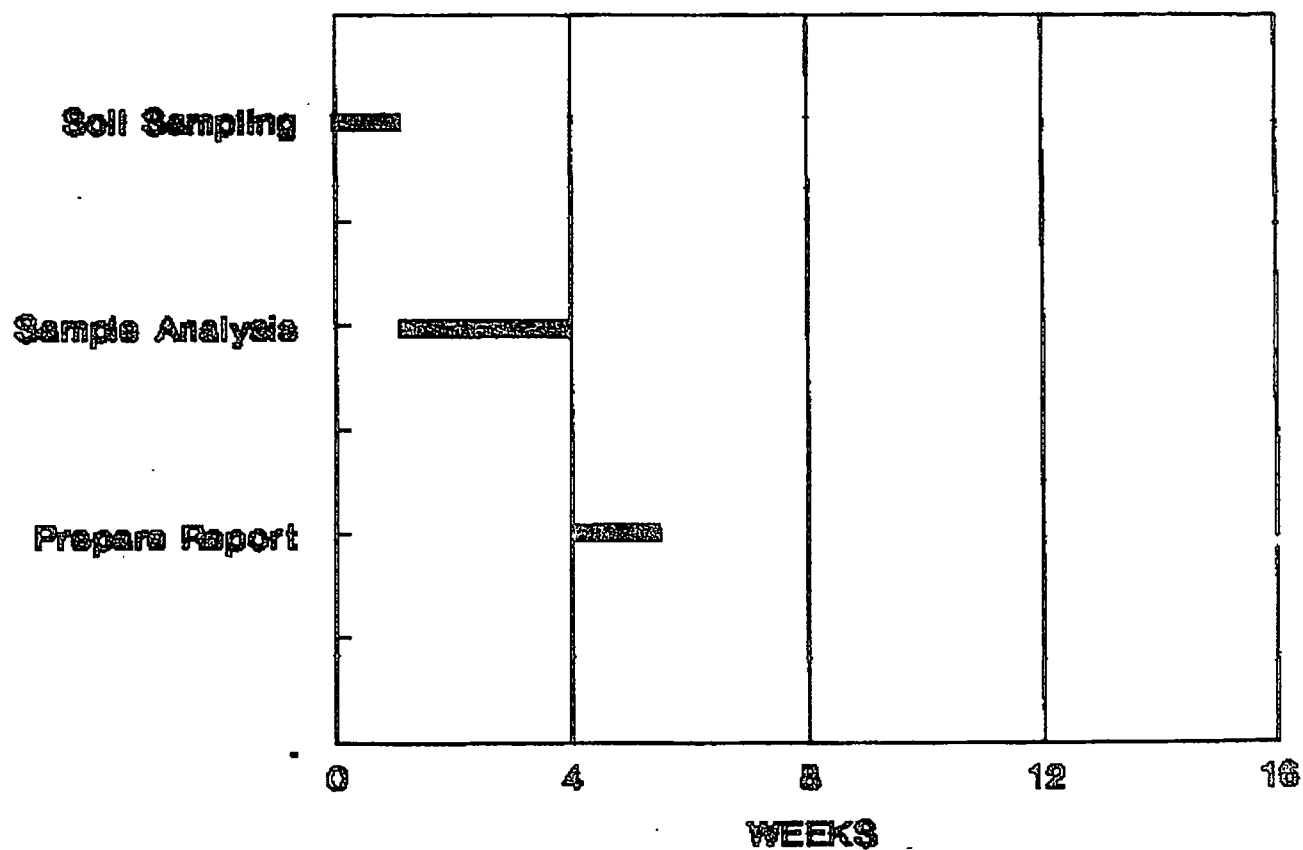
<u>Parameters</u>	<u>EPA Test Method</u>
Cadmium, TCLP	6010
Total Cyanide, TCLP	1311, 335.3
Iron, TCLP	6010
Lead, TCLP	6010
Total Phenols, TCLP	1311
Toluene, TCLP	8240

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4-79-020, Revised March 1983.





**Figure 5 - Proposed Schedule  
US Pipe & Foundry Mixing Bins Closure**



Day 0 starts with approval of Plan.

**GROUNDWATER MONITORING PLAN  
U.S. PIPE & FOUNDRY LANDFILL  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
P.O. Box 311 ✓  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**



MWPS002260

**U. S. PIPE & FOUNDRY FACILITY  
GROUNDWATER MONITORING PLAN  
LANDFILL  
CHATTANOOGA, TENNESSEE  
19 DECEMBER 1990**

**INTRODUCTION**

This report provides a description for a Groundwater Monitoring Plan (GWMP) for the landfill at the U. S. Pipe Foundry Facility in Chattanooga, Tennessee. The U. S. Pipe & Foundry facility is located along the Tennessee River (Nickajack Lake) in a heavily industrial area of Northwestern Chattanooga (Figure 1). The facility actually included two units, the USP Soil Pipe Plant (which ceased operation in May 1990), and the USP Valve and Fittings Unit. The units were in close proximity to one another and consisted of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. The landfill occupies approximately twenty-eight acres located between the two units along the east bank of the Tennessee River (Figure 2). The landfill has been in use for placement of solid waste for approximately 30 years.

The regulatory status of the subject landfill has been a subject of negotiation and discussion between U. S. Pipe & Foundry, the State of Tennessee and the U. S. EPA-Region IV. As a result of these discussions, a Consent Agreement and Final Order was signed on 12 December 1990 requiring submittal of a groundwater monitoring plan for the landfill. This plan addresses the requirement contained in that correspondence that a groundwater monitoring plan (GWMP) that complies with Rule 1200-1-11-.05(6) of Tennessee's Hazardous Waste Management Regulations be developed.

The purpose of the GWMP is to provide preliminary data regarding the occurrence and the rate of migration of groundwater contamination that may be encountered.

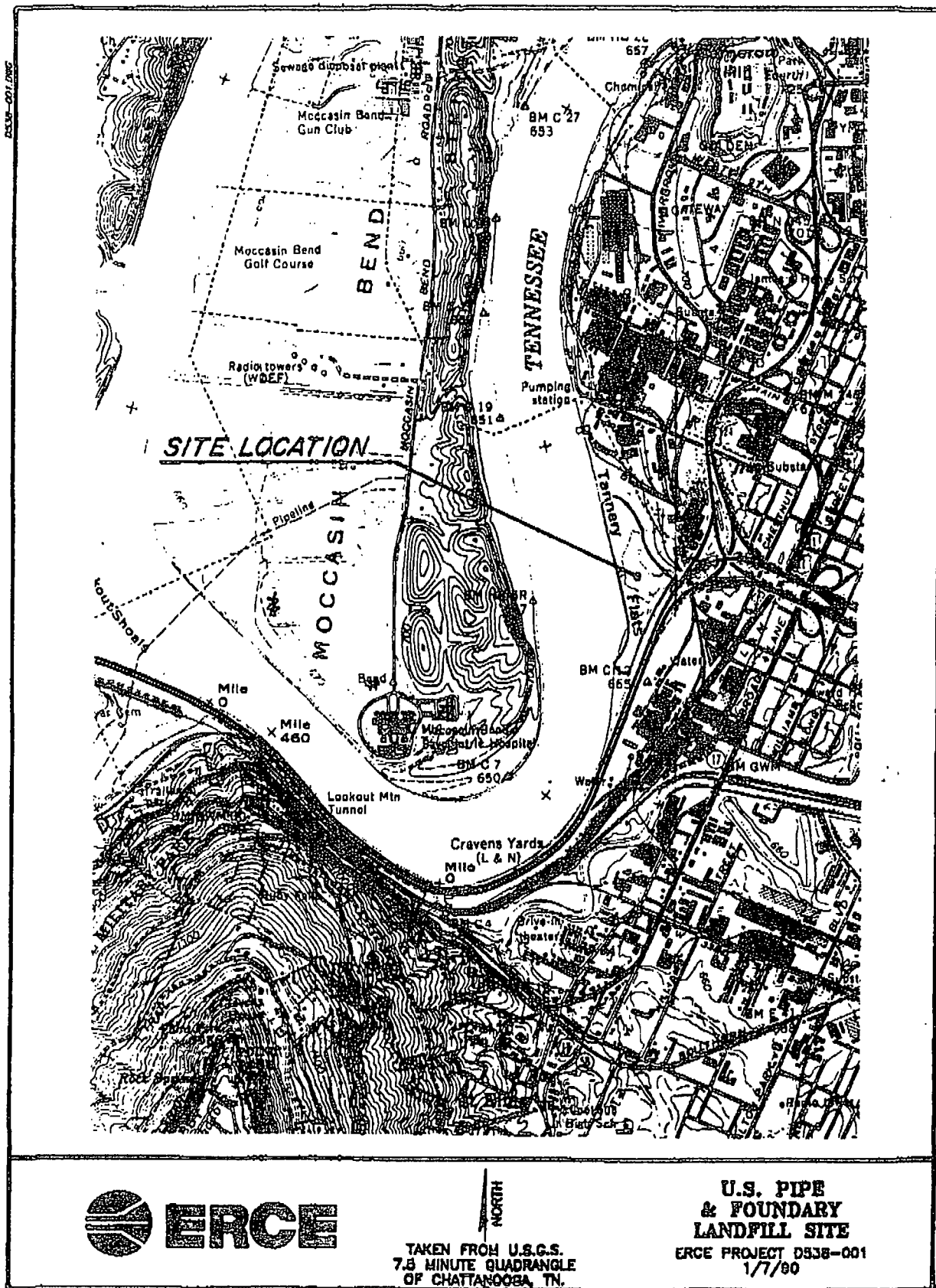


FIGURE 1

01/10/91

12:34

NO. 545

P014

U.S. PIPE AND  
FOUNDRY CO.

LANDFILL  
BOUNDARY

BM C



U.S. PIPE & FOUNDRY SITE  
CHATTANOOGA, TENNESSEE

D538  
1-7-91

NORTH

### BACKGROUND AND SITE CONDITIONS

The subject area is located at a foundry which has been in operation since 1890. The site included two units, the USP Soil Pipe Unit and the USP Valve and Fittings Unit, both of which generated solid waste for on-site disposal. These wastes included foundry sand, core butts, cupola and ductile treating slag, cement lining waste, coke fines, and cupola baghouse dust. One of the solid wastes generated at this facility, the cupola fly ash is that is collected at the baghouse collectors. Such fly ash is alleged by US EPA to be a hazardous waste as defined in section 1004(5) of the Resource Conservation and Recovery Act (RCRA). Various solid waste, including the cupola baghouse dust and fly ash, were blended and mixed in mixing bins prior to being deposited in the landfill.

The landfill is located adjacent to the Tennessee River as shown by Figure 2. The site is underlain by alluvium deposits ranging from sandy clays to fine grained sands. We surmise that these extend to the weathered bedrock, which is probably Mississippian age Fort Payne Formation. Existing groundwater monitoring wells indicate the groundwater table nearly approximates the level of the Tennessee River. Evaluation of existing well data and topographic maps of the site and the surrounding area suggest a westward groundwater flow direction. Our groundwater monitoring plan has been developed based on this conception. However, anthropogenic activities at the subject site over the past 30 years, including the placement of fill, construction of drainage ditches and sewer pipes have undoubtedly complicated the local groundwater flow patterns.

### GROUNDWATER MONITORING PLAN (GWMP)

The GWMP has been tailored to determine the current groundwater quality within the immediate area of the subject landfill

activities. This plan consists of installing two additional groundwater wells downgradient from the subject site as shown by Figure 3. These wells will be used to develop data regarding the aquifer characteristics including flow directions, gradients and potential groundwater contamination. This study will be conducted as described below.

1. To establish the physical characteristics of the aquifer as well as the quality of the groundwater, two wells are proposed at the locations shown by Figure 3. All drilling activities will be monitored by a qualified hydrogeologist. The wells will be constructed using 2 inch diameter flush - threaded PVC. Typical monitoring well configuration details for the proposed wells are included in the Field Sampling Plan (FSP). The downhole equipment will be decontaminated as described in the FSP.
2. The wells will subsequently be surveyed, developed, purged, and sampled in accordance with the procedures described in the FSP. The samples will be analyzed for the parameters shown in Table 1. Within 2 weeks after the laboratory data are available, a technical memorandum will be issued that will include the analytical data, well construction details, survey data and water levels. Subsequently, wells will be sampled quarterly for a time period of one year. The analytical data and groundwater levels for each sampling event will be submitted to the State within 15 days after the data is received from the analytical laboratory. A statistical analysis will be performed on the data as appropriate and in accordance with the State Regulations. Furthermore, any parameters exceeding the limits of EPA Primary Drinking Water Standards will be noted in the quarterly reports and appropriate actions will be recommended.

Figure 3

24" x 36"  
SITE MAP

**TABLE 1**  
**GROUNDWATER ANALYSIS**  
**ANALYTICAL PARAMETERS AND TEST METHODS**

<u>Parameter</u>	<u>EPA Test Method</u>
Alkalinity, as $\text{CaCO}_3$	310.1
Acidity	305.1
Cadmium	200.7
Total Cyanide	335.3
Iron	200.7
Lead	239.2
Total Phenols	420.2
Toluene	602

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4 - 79-020, Revised March 1983

3. River stage monuments will be established on the Tennessee River so that water levels can be measured during groundwater sampling events.
4. A summary report will be prepared and submitted on the findings of the study. This report will include results of groundwater quality, flow directions, water levels, gradients, and aquifer performance. Isopleths depicting potentiometric levels and groundwater quality will be presented where appropriate. Furthermore, recommendations for future work will also be developed if necessary.

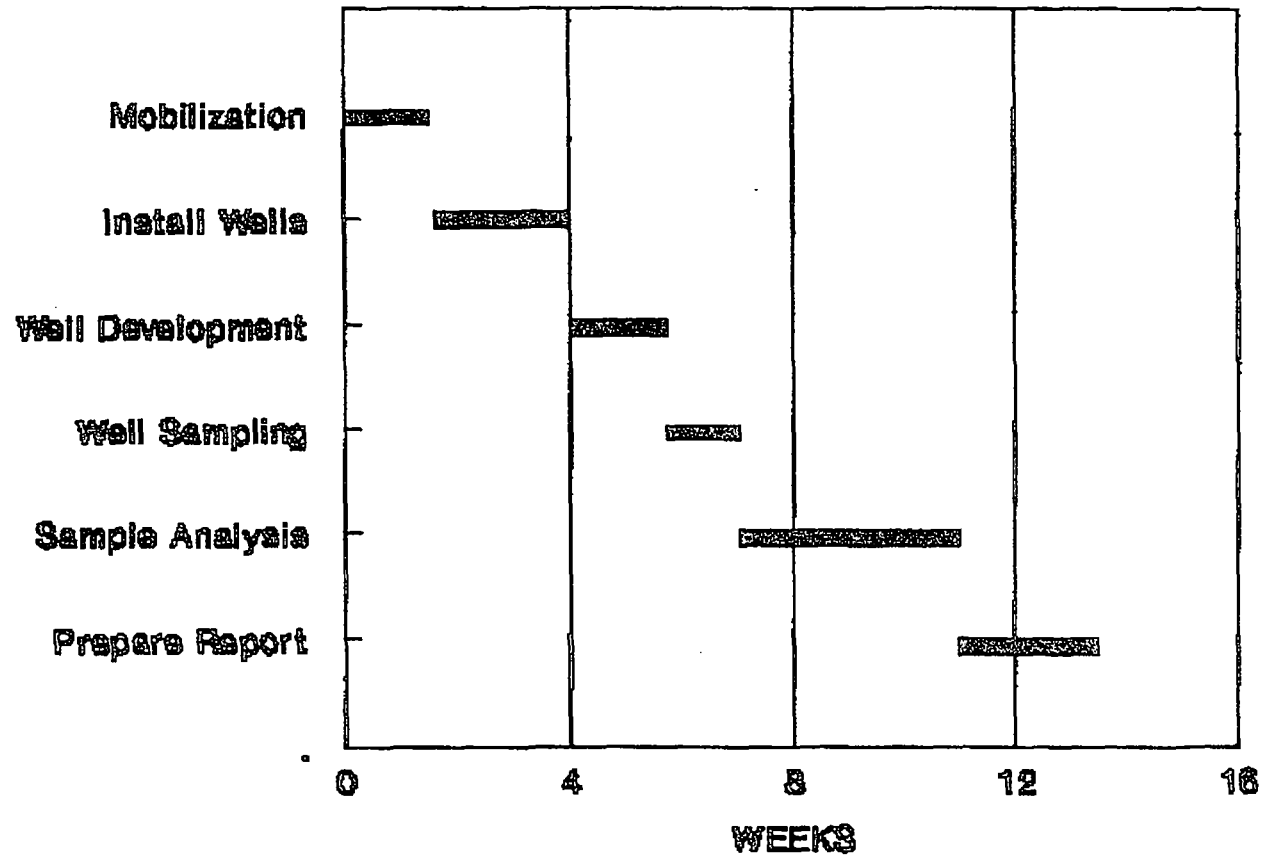
A site hydrogeologist will be present during all field activities. Responsibilities of the project hydrogeologist will include: supervision of drilling and installation of groundwater detection monitoring wells; determination of the appropriate hydrogeologic intervals to be monitored; maintenance of quality control procedures such that the integrity of the well will be acceptable for groundwater detection monitoring; documentation of daily activities, such as maintaining boring logs and well construction details, hydrogeologic observations, and aspects of well development; and implementation of field health and safety plan.

#### SCHEDULE

The proposed schedule for conducting the field work and issuing the comprehensive summary report is shown by Figure 4.

USPIPE.NEW/TL

**Figure 4 - Proposed Schedule  
US Pipe & Foundry GW Monitoring Plan**



Day 0 starts with approval of Plan.

**APPENDIX I**

**FIELD SAMPLING PLAN  
GROUNDWATER MONITORING PLAN  
U.S. PIPE & FOUNDRY LANDFILL  
CHATTANOOGA, TENNESSEE**

**APPENDIX II**  
**QUALITY ASSURANCE PLAN**  
**GROUNDWATER MONITORING PLAN**  
**U.S. PIPE & FOUNDRY**  
**CHATTANOOGA, TENNESSEE**





**ERC/EDGe**  
**Environmental**  
**and Energy**  
**Services Co.**

725 MISSISSIPPI PARKWAY  
P.O. BOX 22879  
KNOXVILLE, TN 37933-0879  
(615/966-9761) Phone  
615/966-4155 - Fax

## TELECOPY COVER LETTER

*Rec. 3:40 PM 1-8-91*

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: John Watson  
FIRM: US Pipe  
CITY: C  
FAX NO. 205 254 7494

SENDER:

NAME: Mark Levy "Levy"  
DATE: 8 JAN 91

MESSAGE: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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CONTACT PERSON: \_\_\_\_\_  
PHONE NUMBER: \_\_\_\_\_

**U.S. PIPE & FOUNDRY  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry ✓  
P.O. Box 6129 311  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**

**U.S. PIPE & FOUNDRY FACILITY  
CHATTANOOGA, TENNESSEE  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
ERCE # D538-003**

This report provides a description of the closure activities at the Fly Ash Mixing/Accumulation Bins at the U.S. Pipe & Foundry (USP) Facility located along the Tennessee River in a heavily industrial area of northwestern Chattanooga (Figure 1).

**BACKGROUND**

*(Ceased operations on May 7, 90)*  
*were*  
There ~~are~~ two manufacturing units of the subject site, consisting of the USP/Soil Pipe Plant and the USP Valve and Fittings Unit. Both units ~~are~~ *were* in close proximity to one another and ~~consist~~ *consisted* of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. Both units ~~disposed~~ *disposed* solid waste into the landfill. One of the solid wastes generated at this facility is the cupola fly ash collected at the baghouse collectors.

Various solid waste, including the baghouse dust and fly ash were blended/mixed on concrete pads prior to being deposited in the landfill. One pad served the Soil Pipe unit and one served the Valve and Fittings unit. Figure 2 shows the locations of the two mixing areas.

The mixing pad that served the Valve and Fittings unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 30 feet in plan dimensions. No significant cracking or movement of the pad was observed.

*which served*

the Soil Pipe unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 20 feet in plan dimensions.

dimensions. Similarly, this pad also appeared competent as no indications of significant degradation was observed.

#### CLOSURE

In January, 1989, U.S. Pipe & Foundry initiated operation of a fly ash fixation system for the treatment of the fly ash, *from both plant* and use of ~~the mixing pads then ceased. Closure of these mixing pads ?~~ consisted of removing all solid waste using front end loaders and small earth moving equipment. The area was subsequently swept.

#### SAMPLING PLAN

Six samples will be collected from each of the concrete pads at the approximate locations shown by Figures 3 and 4. Four of the samples will be collected from sediment/waste remaining on the waste pads, such as at the contact of the vertical walls and floor. Furthermore, two samples will be collected from the gravel surface at the perimeter of the concrete pads. Samples will be analyzed for the analytes shown by Table 1, using Toxicity Characteristic Leaching Procedure (TCLP).

\* Subsequent to this installation, these bins were "closed" to the disposal of untreated cupola baghouse dust, although their use continued for the mixing of the various non-hyg. solid wastes.

Table 1 ✓

U. S. Pipe & Foundry Facility  
Proposed Analysis Parameters  
for Soil Samples Collected at the  
Fly Ash Mixing/Accumulation Bins

<u>Parameters</u>	<u>Method No.</u>
Cadmium, TCLP	6010
Total Cyanide, <del>TCLP</del>	
Iron, TCLP?	6010
Lead, TCLP	6010
Total Phenols, <del>TCLP</del>	
Toluene, TCLP?	
Formaldehyde	

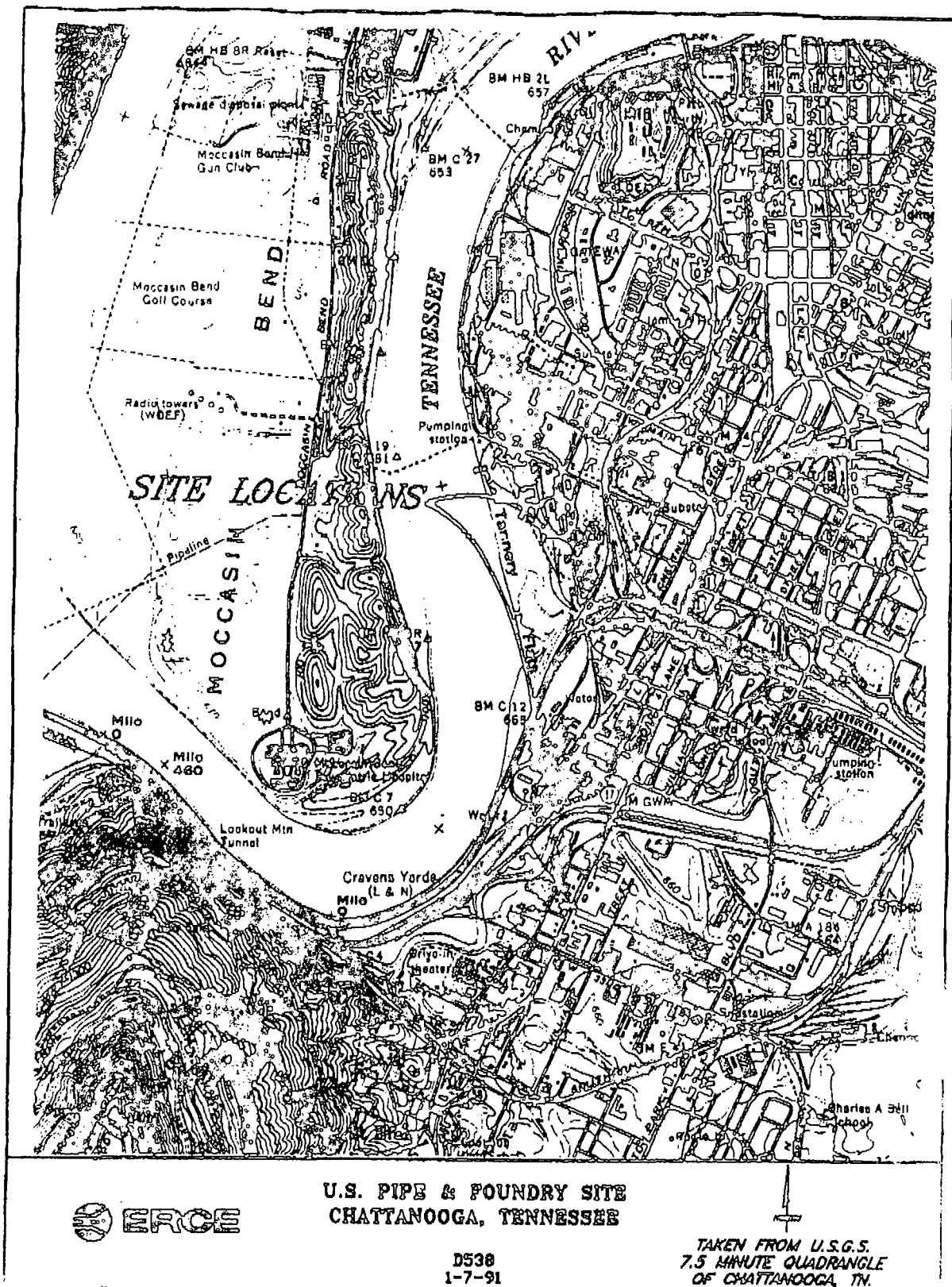


FIGURE 1

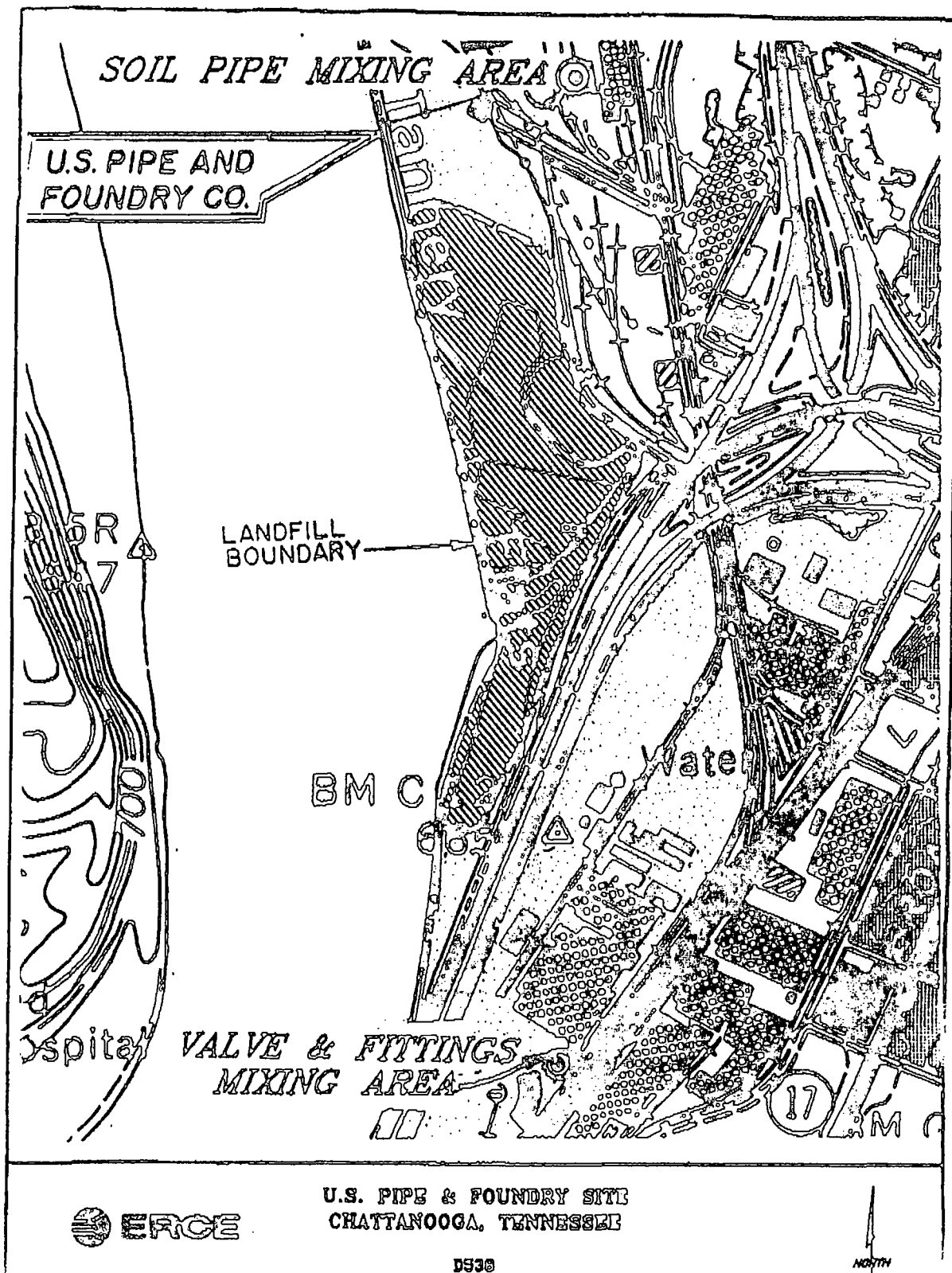


FIGURE 2

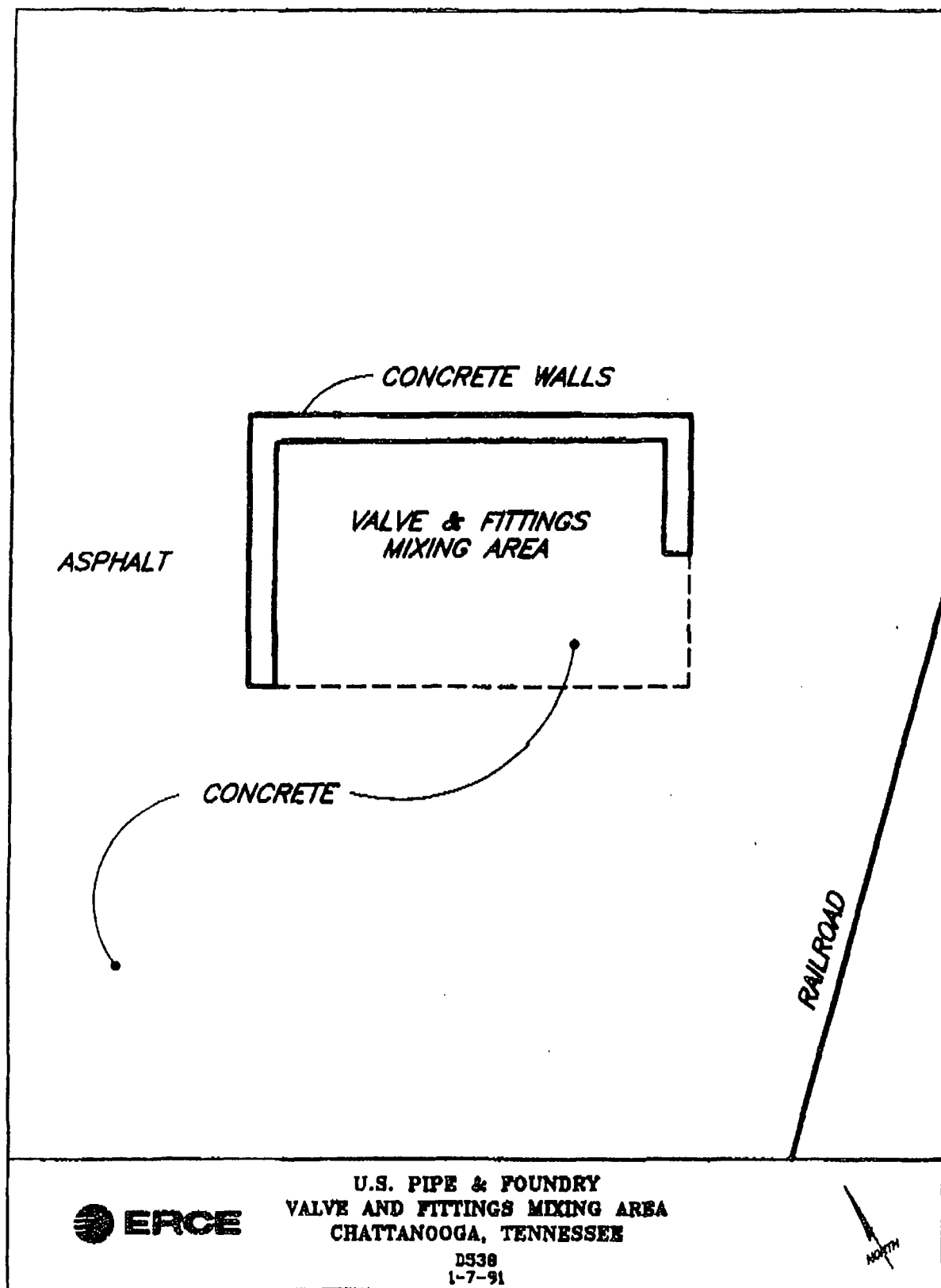


FIGURE J

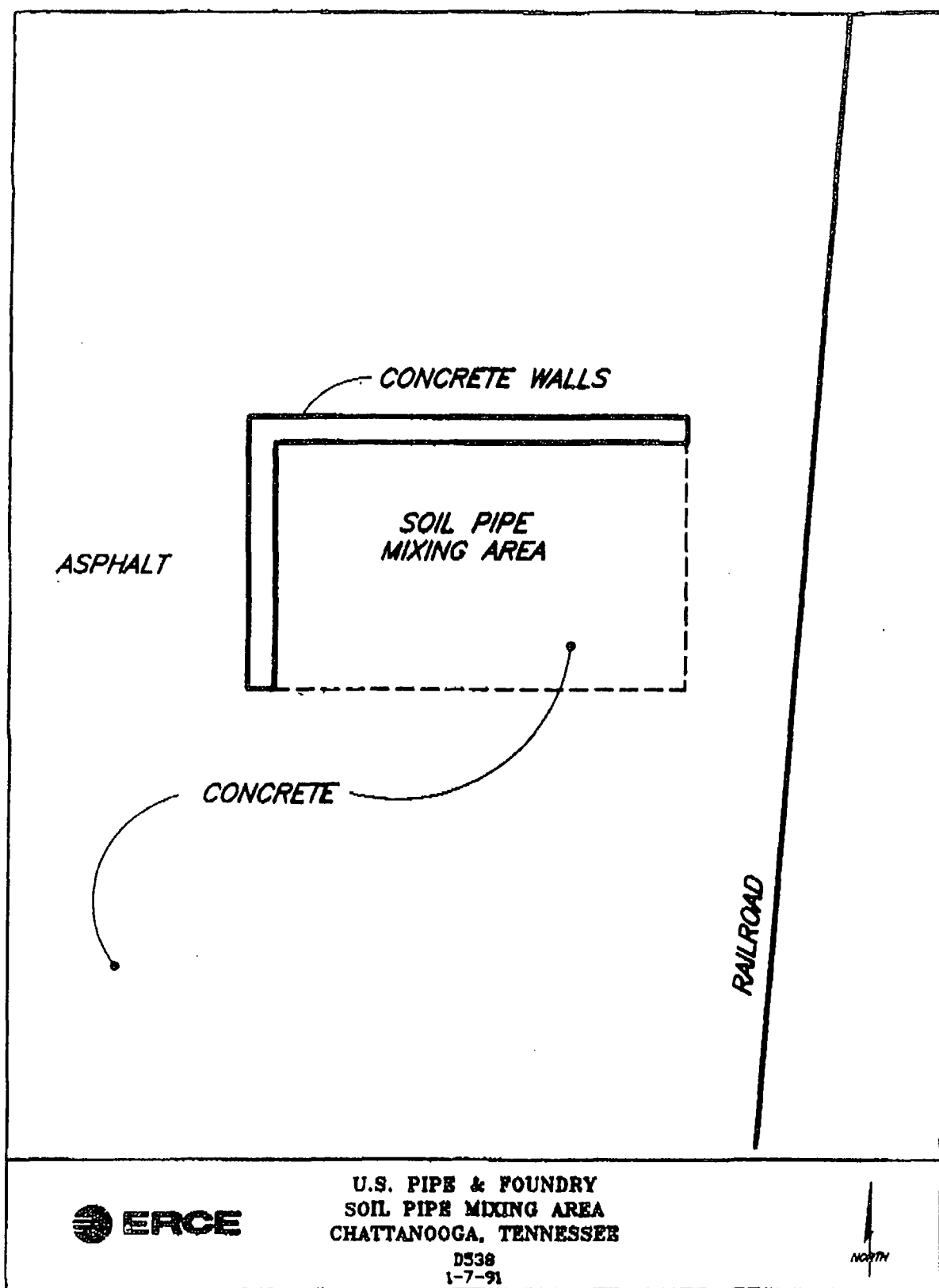


FIGURE 4



**ERC/EDGE**  
**Environmental**  
**and Energy**  
**Services Co.**



725 PELLISSIPPI PARKWAY  
P.O. BOX 22879  
KNOXVILLE, TN 37933-0879  
615/966-9761 - Phone  
615/966-4155 - Fax

## TELECOPY COVER LETTER

*Rec. 4:55 PM 1-8-91.*

**PLEASE DELIVER THE FOLLOWING PAGES TO:**

**NAME:** John Watson  
**FIRM:** US Pipe  
**CITY:** C  
**FAX NO.** 205 254 7494

**SENDER:**

**NAME:** Mark Levy  
**DATE:** 8 JAN 91

**MESSAGE:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Total number of pages** 9, including this cover page.

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**TELEPHONE NUMBER:** \_\_\_\_\_

DRAFT

**GROUNDWATER MONITORING PLAN  
U.S. PIPE & FOUNDRY LANDFILL  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
P.O. Box 6129  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**

U. S. PIPE & FOUNDRY FACILITY  
GROUNDWATER MONITORING PLAN  
LANDFILL  
CHATTANOOGA, TENNESSEE  
19 DECEMBER 1990

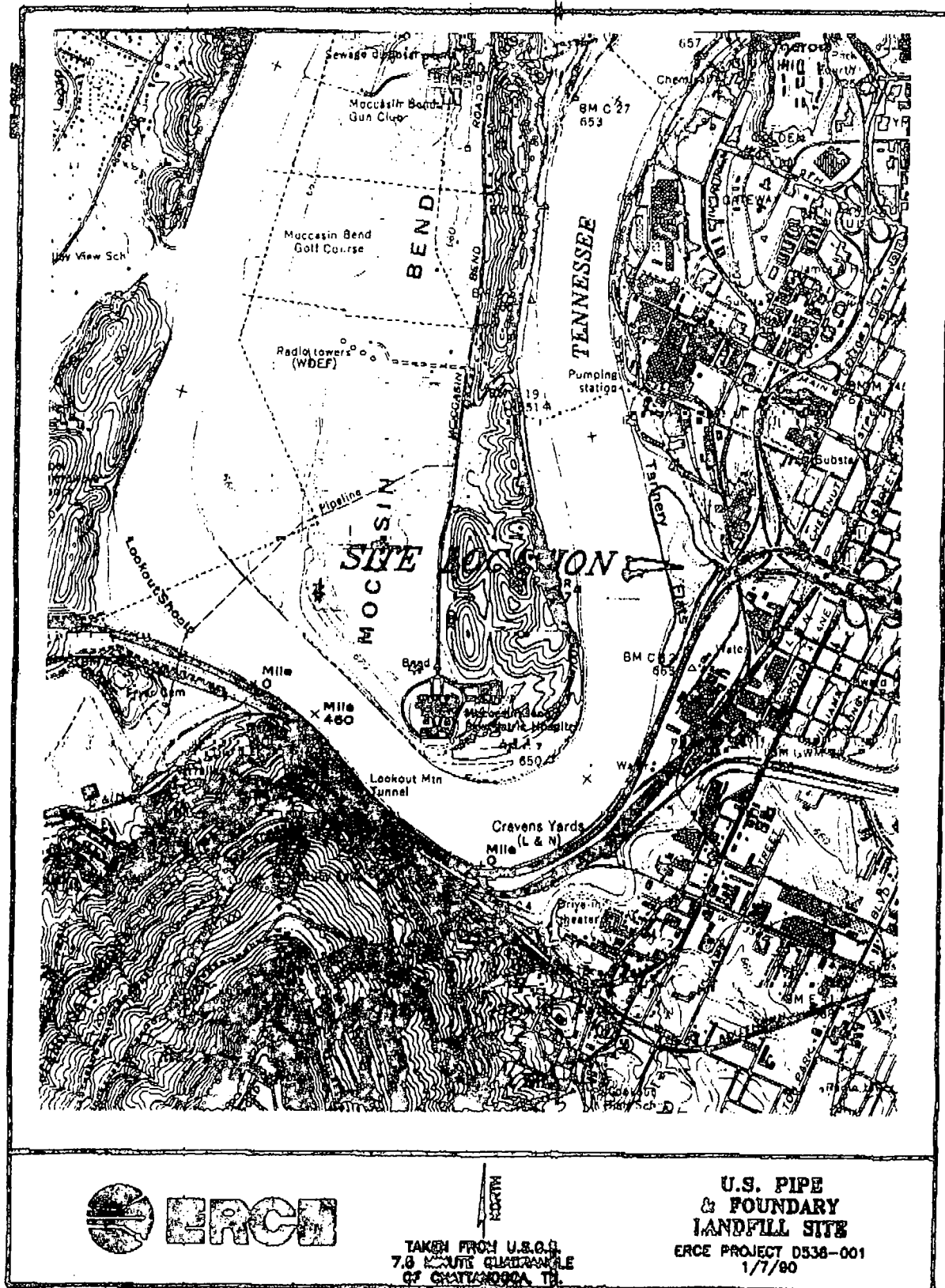
*which ceased operations on May 7, 1990*

**INTRODUCTION**

This report provides a description for a Groundwater Monitoring Plan (GWMP) for the landfill at the U. S. Pipe Foundry Facility in Chattanooga, Tennessee. The U. S. Pipe & Foundry facility is located along the Tennessee River (Nickajack Lake) in a heavily industrial area of northwest Chattanooga (Figure 1). The facility actually included two units, the USP Soil Pipe Plant and the USP Valve and Fittings Unit. The units are in close proximity to one another and consist of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. The landfill occupies approximately twenty-eight acres located between the two units along the east bank of the Tennessee River (Figure 2). The landfill has been in use for placement of solid waste for approximately 30 years. ?

The regulatory status of the subject landfill has been a subject of negotiation and discussion between U. S. Pipe & Foundry, the State of Tennessee and the U. S. EPA-Region IV. As a result of these discussions, a Consent Agreement and Final Order was signed on 12 December 1990 requiring submittal of a groundwater monitoring plan for the landfill. This plan addresses the requirement contained in that correspondence that a groundwater monitoring plan (GWMP) that complies with Rule 1200-1-11-.05(6) of Tennessee's Hazardous Waste Management Regulations be developed. ✓

The purpose of the GWMP is to provide preliminary data regarding the occurrence and the rate of migration of groundwater contamination that may be encountered.



## BACKGROUND AND SITE CONDITIONS

The subject area is located at a foundry which has been in operation since 1890. The site included two units, the USP Soil Pipe Unit and the USP Valve and Fittings Unit, both of which generated solid waste for on-site disposal. These wastes included foundry sand, core butts, cupola and ductile treating slag, cement lining waste, coke fines, and cupola baghouse dust. One of the solid wastes generated at this facility is the cupola fly ash that is collected at the baghouse collectors. Such fly ash is a hazardous waste as defined in section 1004(5) of RCRA. Various solid waste, including the cupola baghouse dust and fly ash, were blended and mixed prior to being deposited in the landfill.

*alleged to be by EPA to be a*

The landfill is located adjacent to the Tennessee River as shown by Figure 2. The site is underlain by alluvium deposits ranging from sandy clays to fine grained sands. We surmise that these extend to the weathered bedrock, which is probably Mississippian age Fort Payne Formation. We anticipate that the groundwater table nearly approximates the level of the Tennessee River. Evaluation of topographic maps of the site and the surrounding area suggest a westward groundwater flow direction. Our groundwater monitoring plan has been developed based on this conception. However, anthropogenic activities at the subject site over the past 30 years, including the placement of fill, construction of drainage ditches and sewer pipes have undoubtedly complicated the local groundwater flow patterns.

## GROUNDWATER MONITORING PLAN (GWMP)

The GWMP has been tailored to determine the current groundwater quality within the immediate area of the subject landfill activities. This plan consists of installing three wells downgradient from the subject site and one well upgradient of the

*\* Are we talking about 4 additional wells,  
or only 2 additional!*

site as shown by the Figure 2. These wells will be used to develop data regarding the aquifer characteristics including flow directions, gradients and potential groundwater contamination. This study will be conducted as described below.

1. To establish the physical characteristics of the aquifer as well as the quality of the groundwater, four wells are proposed at the locations shown by the Drawing. All drilling activities will be monitored by a qualified hydrogeologist. The wells will be constructed using 2 inch diameter flush - threaded PVC. Typical monitoring well configuration details for the proposed wells are included in the Field Sampling Plan (FSP). The downhole equipment will be decontaminated as described in the FSP.
2. The wells will subsequently be surveyed, developed, purged, and sampled in accordance with the procedures described in the FSP. The samples will be analyzed for the parameters shown in Table 1. Within 2 weeks after the laboratory data are available, a technical memorandum will be issued that will include the analytical data, well construction details, survey data and water levels. Subsequently, wells will be sampled quarterly for a time period of one year. The analytical data and groundwater levels for each sampling event will be submitted to the State within 15 days after the data is received from the analytical laboratory. A statistical analysis will be performed on the data as appropriate and in accordance with the State Regulations. Furthermore, any parameters exceeding the limits of .05/B will be noted in the quarterly reports.
3. River stage monuments will be established on the Tennessee River so that water levels can be measured during groundwater sampling events.

TABLE 1 ✓  
GROUNDWATER ANALYSIS  
ANALYTICAL PARAMETERS AND TEST METHODS

<u>Parameter</u>	<u>EPA Test Method</u>
Alkalinity, as CaCO <sub>3</sub>	310.1
Acidity	305.1
Cadmium	7131
Cyanide	9010
Iron	7380
Lead	7421
<del>Formaldehyde</del>	9010
Phenols	9065
Toluene	8240

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4 - 79-020, Revised March 1983

4. A summary report will be prepared and submitted on the findings of ~~the~~<sup>the</sup> study. This report will include results of groundwater quality, flow directions, water levels, gradients, and aquifer performance. Isopleths depicting potentiometric levels and groundwater quality will be presented where appropriate. Furthermore, recommendations for future work will also be developed if necessary.

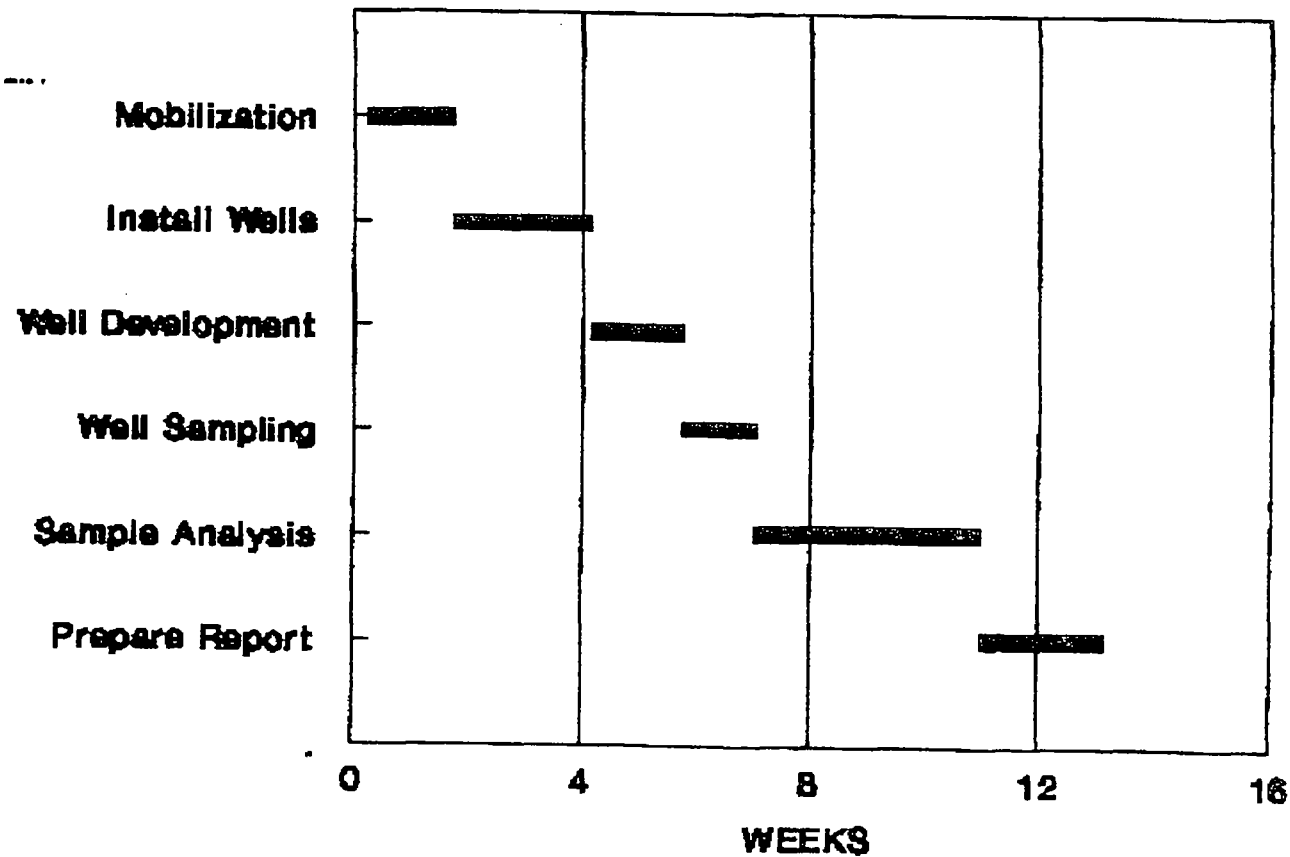
A site hydrogeologist will be present during all field activities. Responsibilities of ~~the~~<sup>the</sup> project hydrogeologist will include: supervision of drilling and installation of groundwater detection monitoring wells; determination of the appropriate hydrogeologic intervals to be monitored; maintenance of quality control procedures such that the integrity of the well will be acceptable for groundwater detection monitoring; documentation of daily activities, such as maintaining boring logs and well construction details, hydrogeologic observations, and aspects of well development; and implementation of field health and safety plan.

#### **SCHEDULE**

The proposed schedule for conducting the field work and issuing the comprehensive summary report is shown by Figure 3.

USPIPE.NEW/TL

**Figure 3 - Proposed Schedule**  
**U S Pipe & Foundry GW Monitoring Plan**



Day 0 starts with approval of Plan.

**APPENDIX I**

**FIELD SAMPLING PLAN**  
**GROUNDWATER MONITORING PLAN**  
**U.S. PIPE & FOUNDRY LANDFILL**  
**CHATTANOOGA, TENNESSEE**

**APPENDIX II**  
**QUALITY ASSURANCE PLAN**  
**GROUNDWATER MONITORING PLAN**  
**U.S. PIPE & FOUNDRY**  
**CHATTANOOGA, TENNESSEE**



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615/966-9761 - Phone  
615/966-4155 - Fax

## TELECOPY COVER LETTER



PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: John Watson  
FIRM: US Pipe  
CITY: \_\_\_\_\_  
FAX NO. 205-254-7494

SENDER:

NAME: Tim Lee - ERGE  
DATE: 1-9-91

MESSAGE: Revision  
\_\_\_\_\_  
\_\_\_\_\_  
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TELEPHONE NUMBER: \_\_\_\_\_

Note: This is not corrected version in  
accordance with our conf. call @ 8:00 AM on 1-10-91!

---

725 Mississippi Parkway  
Knoxville, Tennessee 37933

ERCE #DS38-003

08 January 1991



**U.S. PIPE & FOUNDRY FACILITY  
CHATTANOOGA, TENNESSEE  
FLY ASH MIXING/ACCUMULATION  
BINS CLOSURE ACTIVITIES  
ERCE # D538-003**

This report provides a description of the closure activities at the Fly Ash Mixing/Accumulation Bins at the U.S. Pipe & Foundry (USP) Facility located along the Tennessee River in a heavily industrial area of northwestern Chattanooga (Figure 1).

**BACKGROUND**

There are two manufacturing units of the subject site, consisting of the USP Soil Pipe Plant and the USP Valve and Fittings Unit. Both units are in close proximity to one another and consist of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. Both units deposit solid waste into the landfill. One of the solid wastes generated at this facility is the cupola fly ash collected at the baghouse collectors.

Various solid waste, including the baghouse dust and fly ash were blended/mixed on concrete pads prior to being deposited in the landfill. One pad served the Soil Pipe unit and one served the Valve and Fittings unit. Figure 2 shows the locations of the two mixing areas.

The mixing pad that served the Valve and Fittings unit is a concrete slab with concrete walls on three sides, approximately 20 feet by 30 feet in plan dimensions. No significant cracking or degradation of the pad was observed.

The pad serving the Soil Pipe unit is a concrete slab with concrete walls on two sides, approximately 20 feet by 20 feet in plan



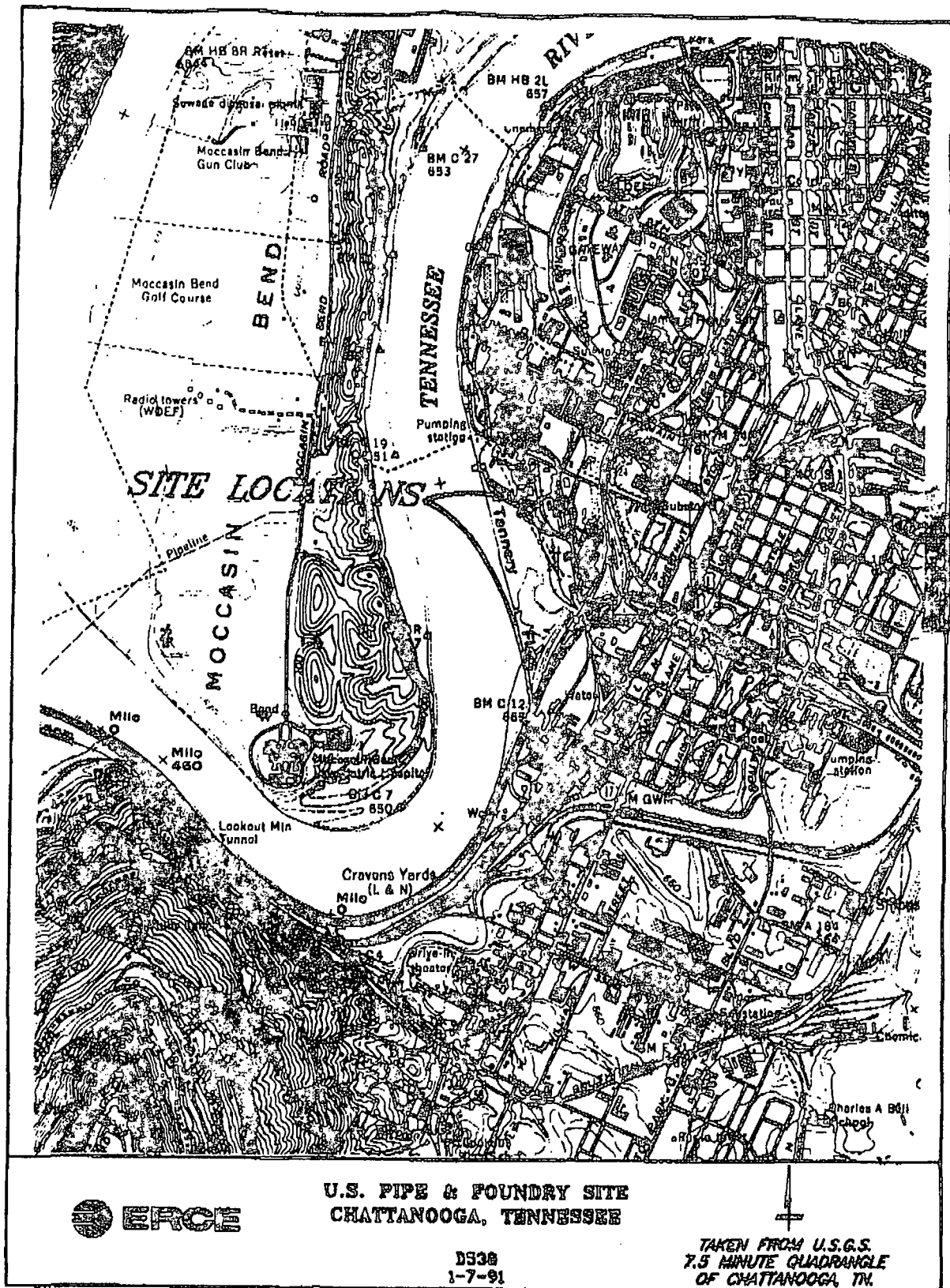


FIGURE 1

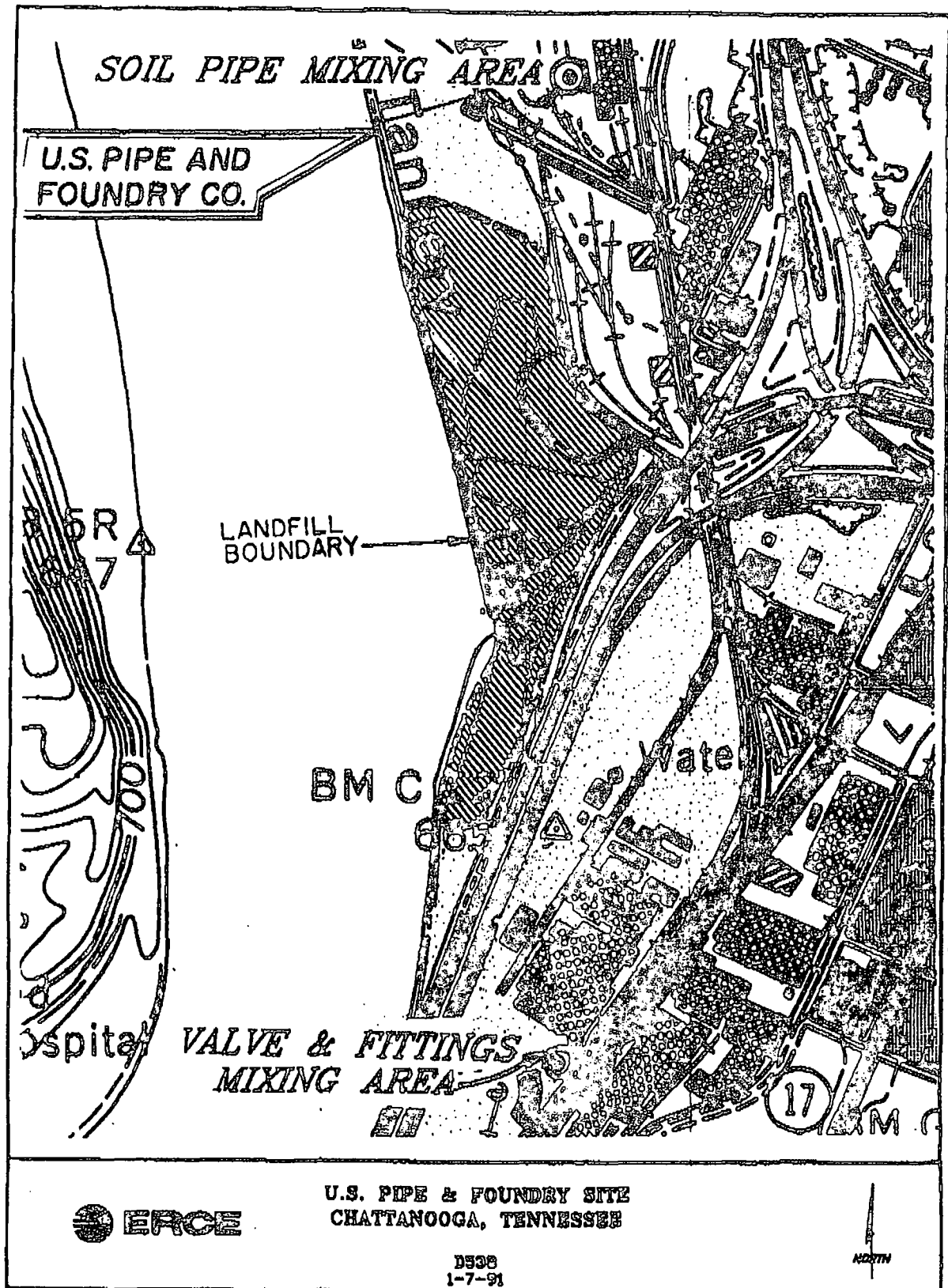


FIGURE 2

MWPS002296

dimensions. Similarly, this pad also appeared competent, as no indications of significant degradation was observed.

#### CLOSURE

In January, 1989, U.S. Pipe & Foundry initiated operation of a fly ash fixation system for the treatment of the fly ash, and use of the mixing pads then ceased. Closure of these mixing pads consisted of removing all solid waste using front end loaders and small earth moving equipment. The area was subsequently swept.

#### SAMPLING PLAN

Six samples will be collected from each of the concrete pads at the approximate locations shown by Figures 3 and 4. Four of the samples will be collected from sediment/waste remaining on the waste pads, such as at the contact of the vertical walls and floor. Furthermore, two samples will be collected from the gravel surface at the perimeter of the concrete pads. Samples will be analyzed for the analysts shown by Table 1, using Toxicity Characteristic Leaching Procedure (TCLP).

Table 1

U. S. Pipe & Foundry Facility  
Proposed Analysis Parameters  
for Soil Samples Collected at the  
Fly Ash Mixing/Accumulation Bins

<u>Parameters</u>	<u>EPA Test Method</u>
Cadmium, TCLP	6010
Total Cyanide, TCLP	1311, 335.3
Iron, TCLP	6010
Lead, TCLP	6010
Total Phenols, TCLP	1311
Toluene, TCLP	8240
Formaldehyde	

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4-79-020, Revised March 1983.

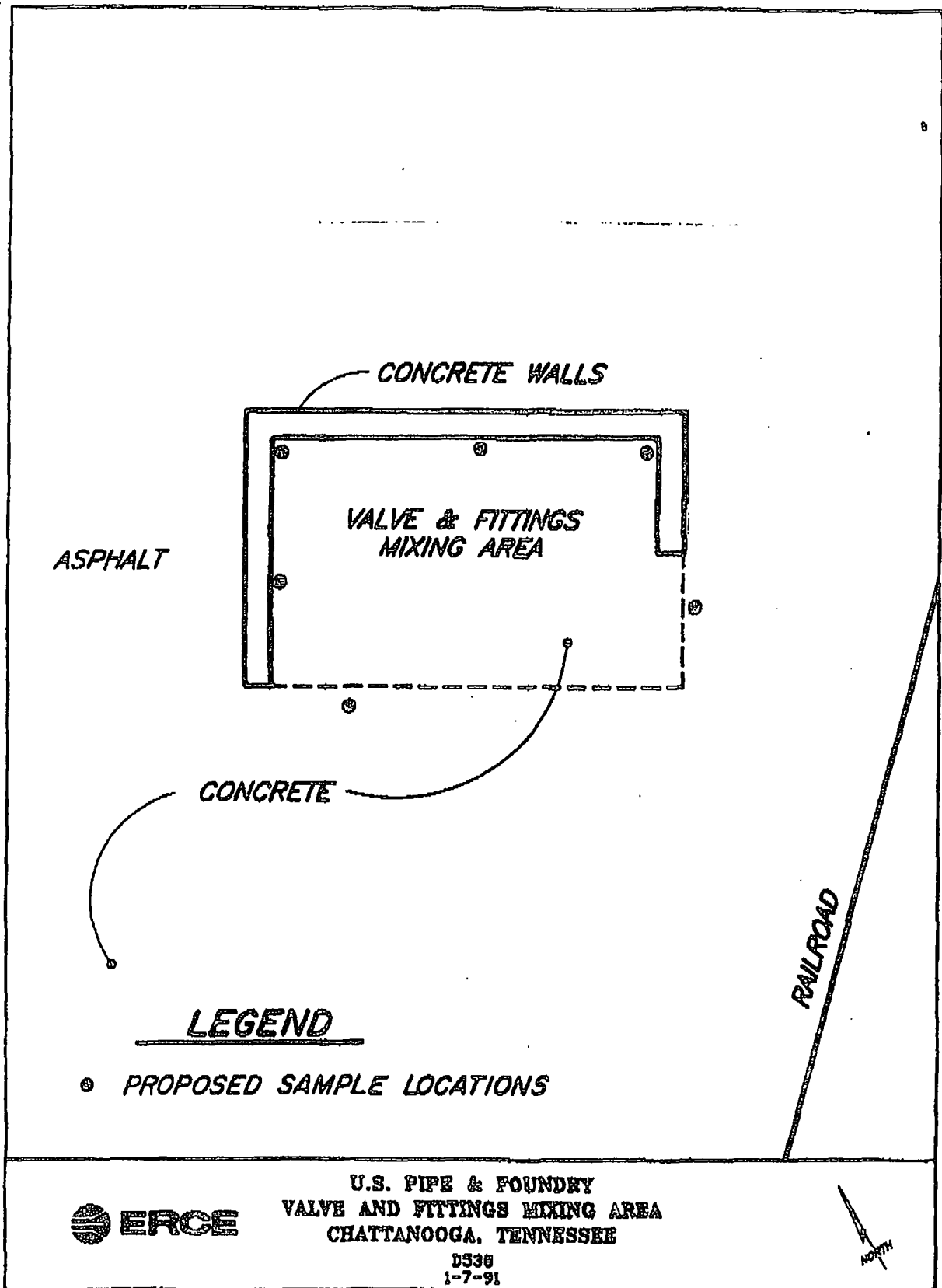


FIGURE J

MWPS002299

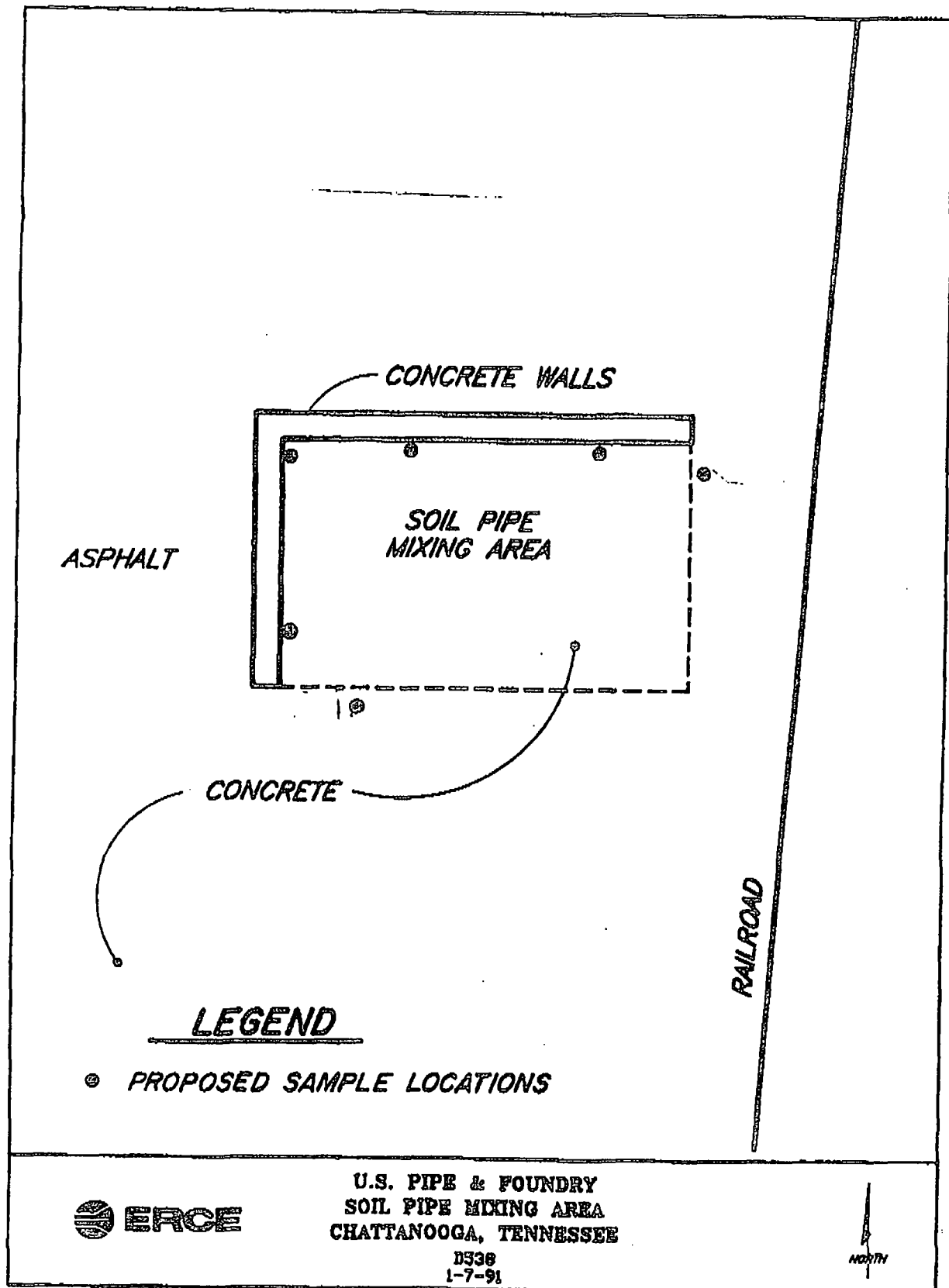


FIGURE 4

MWPS002300

**GROUNDWATER MONITORING PLAN  
U.S. PIPE & FOUNDRY LANDFILL  
CHATTANOOGA, TENNESSEE**

**Prepared For:  
U.S. Pipe & Foundry  
P.O. Box ~~6127~~ 311  
Chattanooga, Tennessee 37401**

**Prepared By:  
ERCE  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933**

**ERCE #D538-003**

**08 January 1991**

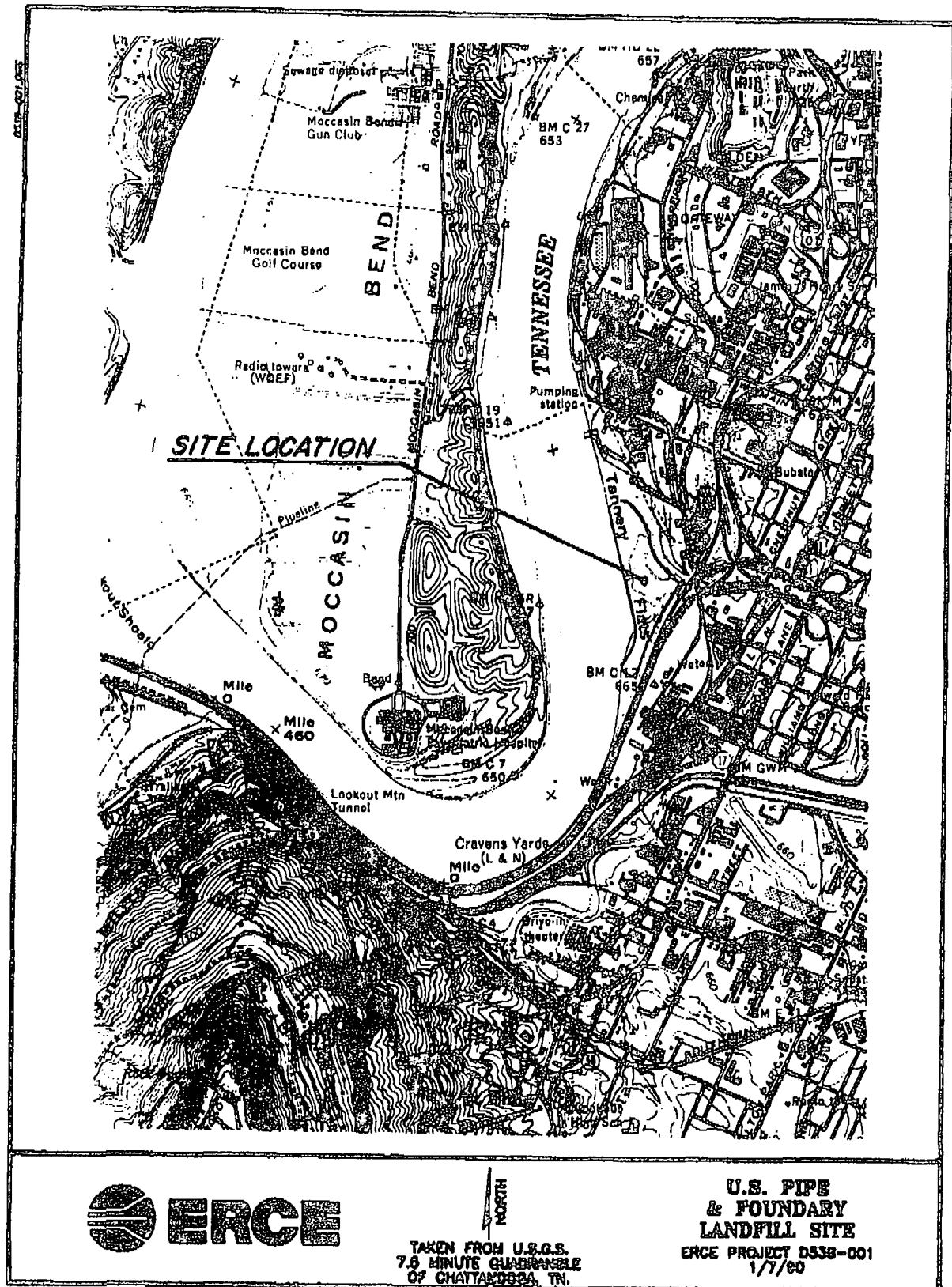
**U. S. PIPE & FOUNDRY FACILITY  
GROUNDWATER MONITORING PLAN  
LANDFILL  
CHATTANOOGA, TENNESSEE  
19 DECEMBER 1990**

**INTRODUCTION**

This report provides a description for a Groundwater Monitoring Plan (GWMP) for the landfill at the U. S. Pipe Foundry Facility in Chattanooga, Tennessee. The U. S. Pipe & Foundry facility is located along the Tennessee River (Nickajack Lake) in a heavily industrial area of northwestern Chattanooga (Figure 1). The facility actually includes two units, the USP Soil Pipe Plant and the USP Valve and Fittings Unit. The units are in close proximity to one another and consist of a foundry area, finished product storage yards, scrap/raw material storage areas and a landfill shared by both units. The landfill occupies approximately twenty-eight acres located between the two units along the east bank of the Tennessee River (Figure 2). The landfill has been in use for placement of solid waste for approximately 30 years.

The regulatory status of the subject landfill has been a subject of negotiation and discussion between U. S. Pipe & Foundry, the State of Tennessee and the U. S. EPA-Region IV. As a result of these discussions, a Consent Agreement and Final Order was signed on 12 December 1990 requiring submittal of a groundwater monitoring plan for the landfill. This plan addresses the requirement contained in that correspondence that a groundwater monitoring plan (GWMP) that complies with Rule 1200-1-11-.05(6) of Tennessee's Hazardous Waste Management Regulations be developed.

The purpose of the GWMP is to provide preliminary data regarding the occurrence and the rate of migration of groundwater contamination that may be encountered.



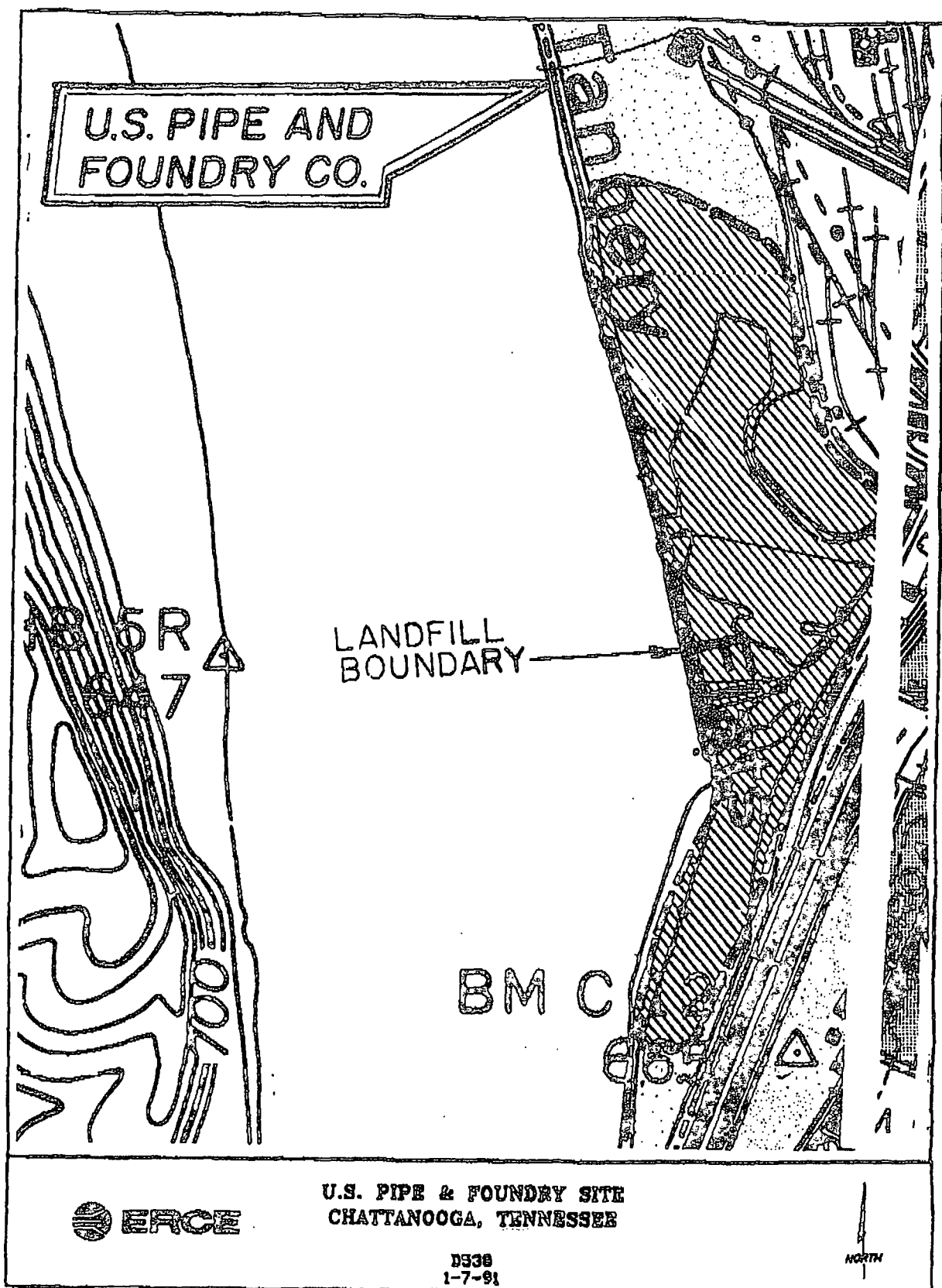


FIGURE 2

MWPS002304

### BACKGROUND AND SITE CONDITIONS

The subject area is located at a foundry which has been in operation since 1890. The site includes two units, the USP Soil Pipe Unit and the USP Valve and Fittings Unit, both of which generate solid waste for on-site disposal. These wastes include foundry sand, core butts, cupola and ductile treating slag, cement lining waste, coke fines, and cupola baghouse dust. One of the solid wastes generated at this facility is the cupola fly ash that is collected at the baghouse collectors. Such fly ash is a hazardous waste as defined in section 1004(5) of the Resource Conservation and Recovery Act (RCRA). Various solid waste, including the cupola baghouse dust and fly ash, were blended and mixed in mixing bins prior to being deposited in the landfill.

The landfill is located adjacent to the Tennessee River as shown by Figure 2. The site is underlain by alluvium deposits ranging from sandy clays to fine grained sands. We surmise that these extend to the weathered bedrock, which is probably Mississippian age Fort Payne Formation. Existing groundwater monitoring wells indicate the groundwater table nearly approximates the level of the Tennessee River. Evaluation of existing well data and topographic maps of the site and the surrounding area suggest a westward groundwater flow direction. Our groundwater monitoring plan has been developed based on this conception. However, anthropogenic activities at the subject site over the past 30 years, including the placement of fill, construction of drainage ditches and sewer pipes have undoubtedly complicated the local groundwater flow patterns.

### GROUNDWATER MONITORING PLAN (GWMP)

The GWMP has been tailored to determine the current groundwater quality within the immediate area of the subject landfill

activities. This plan consists of installing two additional groundwater wells downgradient from the subject site as shown by Figure 3. These wells will be used to develop data regarding the aquifer characteristics including flow directions, gradients and potential groundwater contamination. This study will be conducted as described below.

1. To establish the physical characteristics of the aquifer as well as the quality of the groundwater, two wells are proposed at the locations shown by Figure 2. All drilling activities will be monitored by a qualified hydrogeologist. The wells will be constructed using 2 inch diameter flush - threaded PVC. Typical monitoring well configuration details for the proposed wells are included in the Field Sampling Plan (FSP). The downhole equipment will be decontaminated as described in the FSP.
2. The wells will subsequently be surveyed, developed, purged, and sampled in accordance with the procedures described in the FSP. The samples will be analyzed for the parameters shown in Table 1. Within 2 weeks after the laboratory data are available, a technical memorandum will be issued that will include the analytical data, well construction details, survey data and water levels. Subsequently, wells will be sampled quarterly for a time period of one year. The analytical data and groundwater levels for each sampling event will be submitted to the State within 15 days after the data is received from the analytical laboratory. A statistical analysis will be performed on the data as appropriate and in accordance with the State Regulations. Furthermore, any parameters exceeding the limits of .05/B will be noted in the quarterly reports and appropriate actions will be recommended.

**TABLE 1**  
**GROUNDWATER ANALYSIS**  
**ANALYTICAL PARAMETERS AND TEST METHODS**

<u>Parameter</u>	<u>EPA Test Method</u>
Alkalinity, as CaCO <sub>3</sub>	310.1
Acidity	305.1
Cadmium	200.7
Total Cyanide	335.3
Iron	200.7
Lead	239.2
Formaldehyde	
Total Phenols	420.2
Toluene	602

All analytical procedures will be performed in conformance with EPA SW 846, 3rd Edition, November 1986 and EPA 600/4 - 79-020, Revised March 1983

3. River stage monuments will be established on the Tennessee River so that water levels can be measured during groundwater sampling events.
4. A summary report will be prepared and submitted on the findings of the study. This report will include results of groundwater quality, flow directions, water levels, gradients, and aquifer performance. Isopleths depicting potentiometric levels and groundwater quality will be presented where appropriate. Furthermore, recommendations for future work will also be developed if necessary.

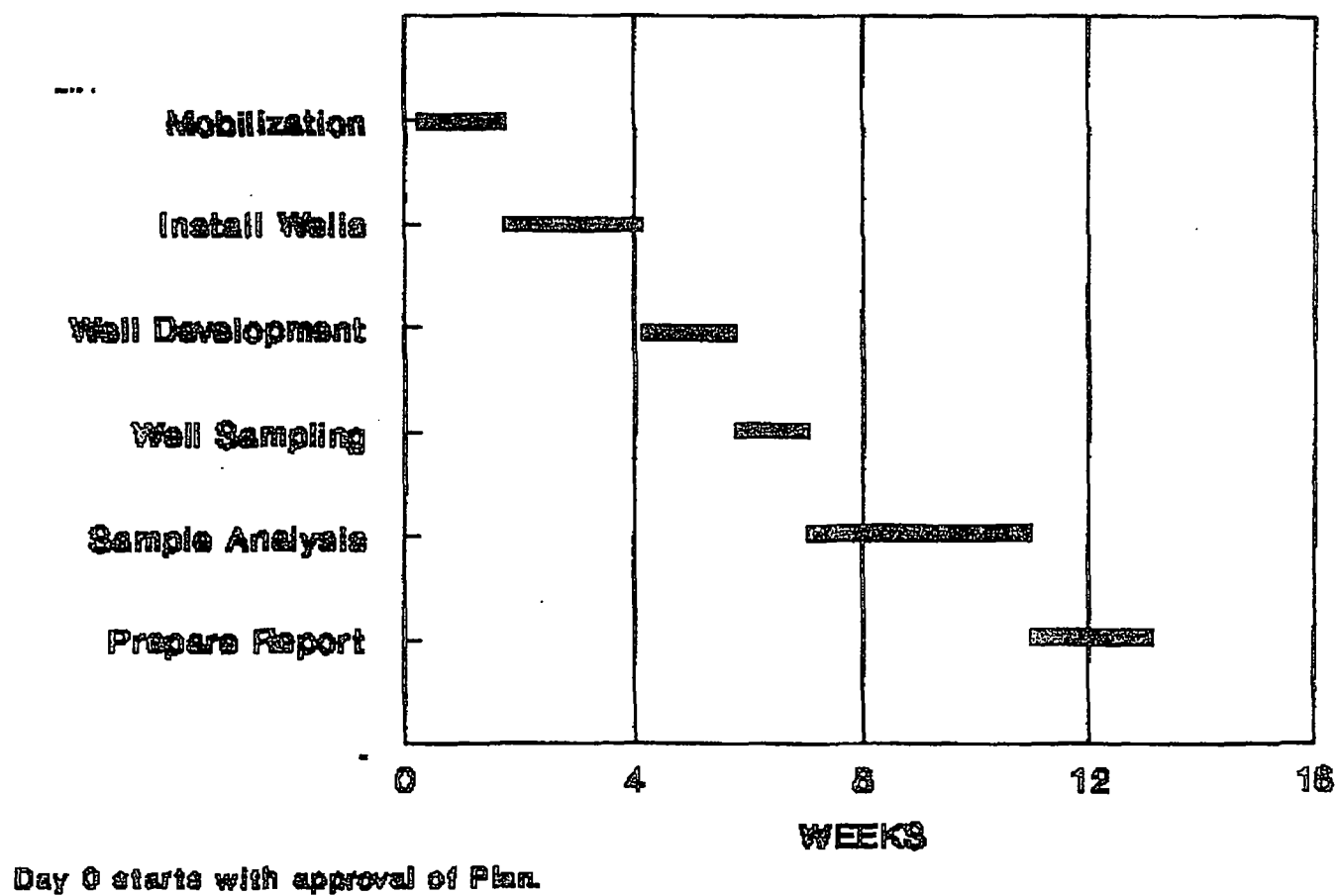
A site hydrogeologist will be present during all field activities. Responsibilities of the project hydrogeologist will include: supervision of drilling and installation of groundwater detection monitoring wells; determination of the appropriate hydrogeologic intervals to be monitored; maintenance of quality control procedures such that the integrity of the well will be acceptable for groundwater detection monitoring; documentation of daily activities, such as maintaining boring logs and well construction details, hydrogeologic observations, and aspects of well development; and implementation of field health and safety plan.

#### SCHEDULE

The proposed schedule for conducting the field work and issuing the comprehensive summary report is shown by Figure 4.

USPIPE.NEW/TL

4  
**Figure 3 - Proposed Schedule**  
**U S Pipe & Foundry GW Monitoring Plan**



**APPENDIX I**

**FIELD SAMPLING PLAN  
GROUNDWATER MONITORING PLAN  
U.S. PIPE & FOUNDRY LANDFILL  
CHATTANOOGA, TENNESSEE**

**APPENDIX II**

**QUALITY ASSURANCE PLAN**  
**GROUNDWATER MONITORING PLAN**  
**U.S. PIPE & FOUNDRY**  
**CHATTANOOGA, TENNESSEE**



UNITED STATES PIPE AND FOUNDRY COMPANY

3300 FIRST AVENUE NORTH 35222

POST OFFICE BOX 10406

BIRMINGHAM, ALABAMA 35202

October 28, 1987

Mr. Tom Tiesler, Director  
Division of Solid Waste Management  
Tennessee Department of Health and Environment  
Customs House  
701 Broadway  
Nashville, Tennessee 37219-5403

Re: Landfill - Chattanooga Plants

Dear Mr. Tiesler:

In accordance with your letter of September 29, 1987 (received on October 15, 1987), we are hereby submitting the proposed schedule as requested and outlined by the first four items of that letter.

Quarterly monitoring of groundwater and surface water commenced on October 27, 1987. The samples collected on this date were sampled in accordance with EPA's SW846, will be analyzed for the parameters of concern, and the results submitted to Mr. Steve Baxter. Future sampling of ground and surface water will be addressed in the Construction Plans and Operations Manual.

The landfill Construction Plans and Operations Manual will be submitted to the Division on or before January 15, 1988. As for the cupola baghouse dust, our plans are to have a treatment system for this dust installed and operational at one of the two plants by October 31, 1988. A final decision on which plant has not been made, but cupola baghouse dust from both will be treated in this system prior to disposal on the landfill. After this date, only waste considered inert will be disposed of on site.

With respect to the monthly inspection report for interim site operation procedures, a report checklist was developed with the help of Ms. Janet Dutto on October 27, 1987, and reports will be submitted to the Chattanooga office on a monthly basis.

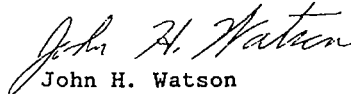
We certainly appreciate your cooperation and guidance in these matters and trust that the above schedule is acceptable to the Division.

MWPS002312

Mr. Tom Tiesler  
October 28, 1987  
Page 2

Should you have any questions on the above, please let me know.

Yours truly,



John H. Watson  
Principal Environmental Engineer

JHW/js

cc: Mr. Steve Baxter  
DSWM - Chattanooga

bc: Messrs. W. E. Fleck  
C. N. Coddling  
W. A. Berry  
J. B. Dockery  
J. Smallwood  
H. G. Reynolds  
W. D. Vines  
C. F. Priddy



ENVIRONMENTAL SERVICE

OCT 15 1987

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

CERTIFIED MAIL #P 505 231 538  
RETURN RECEIPT REQUESTED

✓ Copies to: W. E. Fleck  
10-16-87 C. N. Coddling  
W. A. Berry  
J. B. Dockery  
Jim Smallwood  
H. G. Reynolds  
W. D. Vines-Knoxville  
Chuck Priddy - "

September 29, 1987

Mr. John Watson  
U.S. Pipe & Foundry  
3300 First Avenue North  
Birmingham, AL 35202

Dear Mr. Watson:

On July 15, 1987 the Tennessee Department of Health and Environment, Division of Solid Waste Management conducted a Show-Cause meeting. This meeting was in regard to alleged violations of the Tennessee Solid Waste Disposal Act Section 68-31-106. You were in attendance representing U.S. Pipe and Foundry along with Messrs. Bill Vines, Jim Wright, Chuck Priddy, and Gerre Reynolds. During the course of the meeting you were told that the Department would make a determination whether to continue with enforcement action. This letter will serve to inform you that the Department has decided to continue with enforcement action.

The Department requests that U.S. Pipe and Foundry propose a schedule for the following items:

1. Submittal of plans for groundwater monitoring on a quarterly basis for the following parameters: cadmium, cyanide, formaldehyde, iron, lead, phenols, toluene, and total organic carbon. ✓ Proper sampling methods as outlined in EPA's Test Methods for Evaluating Solid Waste SW 846 must be used and analytical results must be promptly submitted to the Division.
2. Submittal of plans for surface water monitoring, of the onsite discharge pipe, on a quarterly basis for the following parameters: cadmium, cyanide, formaldehyde, iron, lead, phenols, toluene, and total organic carbon. ✓ Since this pipe receives the overflow from a sewage pumping station, sampling must be conducted during periods of dry weather. Proper sampling methods as outlined in SW 846 must be used and analytical results must be promptly submitted to the Division.
3. Submittal of Construction Plans and an Operations Manual designed for the inert waste.
4. Submittal of a date for the completion and operation of the treatment system.  
Oct. 31 1988 At this time, the baghouse dust and "other" wastes not considered inert must be treated and rendered inert or these wastes must be excluded from this site.

MWPS002314

Mr. John Watson  
September 29, 1987  
Page 2

These items should be submitted to the Division no later than two weeks from the date of receipt of this letter.

*by Oct. 29!*

In addition, the following items should be implemented immediately:

- ✓1. Only wastes generated by U.S. Pipe and Foundry in Chattanooga, i.e. foundry sand, baghouse dust, dried sludge, slag, coke fines, cement, refractories, and inert demolition debris, may be deposited at this site. Waste containing free liquids must be restricted from this site.
- ✓2. Measures must be taken to correct erosion problems, i.e. stabilization of steep slopes and proper grading of the entire site to prevent the ponding of water.
- ✓3. Measures must be taken to provide adequate silt control onsite.
- ✓4. Measures must be taken to provide adequate dust control onsite, i.e., foundry sand could be used to cover baghouse dust.
- ✓5. Monthly inspections must be conducted to ensure the implementation of proper interim site operation procedures. These inspection reports must be submitted to the Division in a timely manner.

The Department gratefully acknowledges and appreciates the cooperation and assistance from U.S. Pipe and Foundry. If there are any questions concerning this correspondence, contact this office at (615) 741-3424 or the Chattanooga Field Office at (615) 624-9921.

Sincerely,



Tom Tiesler, Director  
Division of Solid Waste Management

TT/cw SWM D-3

cc: Steve Baxter-DSWM-Chattanooga  
Doye Rowland-DSWM-Nashville  
Frank Victory-DSWM-Nashville  
Central File-DSWM-Nashville

Oct. 16, 87

Sub: Landfill @ Chatt. (Re: state letter of 9-29-87)  
recd. on 10-15-87

I. Propose schedule (by Oct. 29, 87)

Item 1. Get Chuck Priddy to suggest "plans" for groundwater monitoring! Quarterly

Item 2. Surface water monitoring; same as above!

Item 3. Const. & Oper. plans - discuss with Chuck!  
Chuck would like to propose 60 days!

Item 4. Completion & operation schedule for Solidfix!

At meeting in July, they suggested some interim "mileposts" with reports to them at those times!

Get with Mike Keel on this; we may be looking at Oct. 1, 88 startup. Also need some interim dates!  
(Now Oct. 31, 88)

"Other" wastes to be addressed!

a. Waste incinerator sand - 3TPD

b. Braun & dy grinding dust - 400#/day

c. " " " melting dust - 60#/day

Item 4. (Cont.) \*Note: Since we are going to propose installation of only one Solifix sys. (probably at CVF), we might as well propose the loading of Brau Fdy. waste into treatment sys. along with Cup. B.H. dust from CSP! See no reason we cannot get permission from City to haul "isocure" sand to their landfill!

## II. Interim Measures (implemented immediately)

Item 1. We can comply now - no free liquids

\* Item 2. Get with Jim Smallwood. Steep side slopes, i.e. ↓  
those without vegetation and where runoff is cutting "valleys"; need to be graded back to 2 to 1 slope and stabilized. Top surface to be graded!  
May need to get Chuck Priddy involved and begin shaping landfill as shown in C & O Plans!

Item 3. Get Chuck to recommend type of silt control and areas where they should be used!

\* This was all discussed with Janet Hunter in an on-site inspection with Jim Smallwood & Chuck Priddy on Oct. 27, 87.

Item 4. Get Jim Smollwood to look at best procedure for getting B.H. dust covered, either with sand or slag! \*Chuck Priddy discussed this with Jim S. on 10-27-87

Item 5. Discuss with Jim Smollwood! He should get someone to make the "monthly" inspection and submit to Steve Baxter. Check with Steve Baxter, he may already have some checklist in mind! \*Chuck Priddy worked up a checklist with input from Janet Putto on Oct. 27, 87!

Note : Discussed above with Jim Smollwood and Chuck Priddy  
10-26-87 today. Chuck will get their Hydrogeologist and get down to Choth. plant this week to confer with Jim Smollwood on the interim measures plus checking out the existing monitoring wells to see if they can be reused, and if not, new wells will be installed. If OK with Jim, he will invite Janet Putto to look at site with them and get her OK. They will ask Janet about a checklist for the monthly inspection of item 5 above.



TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT  
CUSTOMS HOUSE  
701 BROADWAY  
NASHVILLE, TENNESSEE 37219-5403

ENVIRONMENTAL SERVICE

OCT 15 1987

RECEIVED

OCT 19 1987

Plant Eng.

CERTIFIED MAIL #P 505 231 538  
RETURN RECEIPT REQUESTED

*Copies to: W. E. Fleck  
C. N. Coddling  
W. A. Berry  
J. B. Dockery  
Jim Smallwood  
H. G. Reynolds  
W. D. Vines - Knoxville  
Chuck Priddy - "*

*TO J. B. Vines*

September 29, 1987

Mr. John Watson  
U.S. Pipe & Foundry  
3300 First Avenue North  
Birmingham, AL 35202

Dear Mr. Watson:

On July 15, 1987 the Tennessee Department of Health and Environment, Division of Solid Waste Management conducted a Show-Cause meeting. This meeting was in regard to alleged violations of the Tennessee Solid Waste Disposal Act Section 68-31-106. You were in attendance representing U.S. Pipe and Foundry along with Messrs. Bill Vines, Jim Wright, Chuck Priddy, and Gerre Reynolds. During the course of the meeting you were told that the Department would make a determination whether to continue with enforcement action. This letter will serve to inform you that the Department has decided to continue with enforcement action.

The Department requests that U.S. Pipe and Foundry propose a schedule for the following items:

1. Submittal of plans for groundwater monitoring on a quarterly basis for the following parameters: cadmium, cyanide, formaldehyde, iron, lead, phenols, toluene, and total organic carbon. Proper sampling methods as outlined in EPA's Test Methods for Evaluating Solid Waste SW 846 must be used and analytical results must be promptly submitted to the Division.
2. Submittal of plans for surface water monitoring, of the onsite discharge pipe, on a quarterly basis for the following parameters: cadmium, cyanide, formaldehyde, iron, lead, phenols, toluene, and total organic carbon. Since this pipe receives the overflow from a sewage pumping station, sampling must be conducted during periods of dry weather. Proper sampling methods as outlined in SW 846 must be used and analytical results must be promptly submitted to the Division.
3. Submittal of Construction Plans and an Operations Manual designed for the inert waste.
4. Submittal of a date for the completion and operation of the treatment system. At this time, the baghouse dust and other wastes not considered inert must be treated and rendered inert or these wastes must be excluded from this site.

MWPS002319

Mr. John Watson  
September 29, 1987  
Page 2

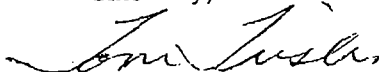
These items should be submitted to the Division no later than two weeks from the date of receipt of this letter.

In addition, the following items should be implemented immediately:

1. Only wastes generated by U.S. Pipe and Foundry in Chattanooga, i.e. foundry sand, baghouse dust, dried sludge, slag, coke fines, cement, refractories, and inert demolition debris, may be deposited at this site. Waste containing free liquids must be restricted from this site.
2. Measures must be taken to correct erosion problems, i.e. stabilization of steep slopes and proper grading of the entire site to prevent the ponding of water.
3. Measures must be taken to provide adequate silt control onsite.
4. Measures must be taken to provide adequate dust control onsite, i.e., foundry sand could be used to cover baghouse dust.
5. Monthly inspections must be conducted to ensure the implementation of proper interim site operation procedures. These inspection reports must be submitted to the Division in a timely manner.

The Department gratefully acknowledges and appreciates the cooperation and assistance from U.S. Pipe and Foundry. If there are any questions concerning this correspondence, contact this office at (615) 741-3424 or the Chattanooga Field Office at (615) 624-9921.

Sincerely,



Tom Tiesler, Director  
Division of Solid Waste Management

TT/cw SWM D-3

cc: Steve Baxter-DSWM-Chattanooga  
Doye Rowland-DSWM-Nashville  
Frank Victory-DSWM-Nashville  
Central File-DSWM-Nashville



STATE OF TENNESSEE  
DEPARTMENT OF HEALTH AND ENVIRONMENT  
SOUTHEAST REGIONAL OFFICE  
2301 MILNE STREET  
CHATTANOOGA, TENNESSEE 37406-3389

July 31, 1986

ENVIRONMENTAL SERVICE  
400 - 1 1986

*John Pleasant sent copies  
to Plant Manager  
and MCI, & Bill Fleck*

Mr. John H. Watson  
U. S. Pipe and Foundry Company  
3300 First Avenue, North  
Birmingham, Alabama 35202

Dear Mr. Watson:

This office has completed a review of the Construction Plans, Operations Manual, waste streams, and waste analyses submitted by U. S. Pipe and Foundry (USPF) for permitting of the USPF solid waste disposal facility. A review of this submitted material and on-site investigation have resulted in the following comments, observations, and determinations:

1. The existing landfill is only suitable for wastes which are inert. Cupola baghouse dust, brass foundry grinding baghouse dust (CVF source K(b)), brass foundry melting baghouse dust (CVF source K(c)), and waste isocore sand have been shown through analyses submitted by USPF to leach undesirable constituents. These wastes and any other wastes which leach undesirable constituents must be treated as a special waste. These special wastes must be treated and rendered inert or otherwise be disposed in a manner to ensure that leaching of the waste into the environment will not occur. The Division has decided that a disposal site designed for these special wastes should at a minimum, meet the requirements for "monofills" as outlined in Rule 1200-1-11-.05(11)(b)4 of the Rules Governing Hazardous Waste Management In Tennessee. It is not our intent to regulate these special wastes as hazardous waste. It is our intent, however, to ensure that these special wastes are disposed of in a manner that will prevent the leaching of undesirable constituents into the environment. \*
2. During an on-site meeting with Jim Book on July 25, 1986, a sewage pumping station was observed at the east end of the site. The pumping station appeared to be pumping sewage to the southwest, under the landfill. A sewage overflow ditch was also observed at the pumping station. The ditch was about fifty to sixty feet in length and abruptly ended-not allowing proper drainage. The rest of the area was low (but not a defined ditch); this area lead to the entrance of a large (72 inch) corrugated metal pipe. This pipe probably runs southwest under the landfill to a inlet area and conveys sewage to the river during wet weather conditions.

\* On the day of my visit no sewage or water was entering the 72-inch pipe, yet a flow of water was exiting the 72-inch pipe at the river. Since no water was entering the pipe at the source, it appears that the pipe

Mr. John H. Watson  
July 31, 1986  
Page 2

must be intercepting some type of drainage from within the landfill. The source of this drainage must be explained. It must also be noted that this pipe provides a route for wastes to flow from the landfill to the Tennessee River.

Other observations included a concrete pipe located slightly south of the inlet area. The concrete pipe was located beneath a concrete slab at the edge of the river. The pipe was observed in the water and travels north across the inlet. This pipe could be the sewage pumping line. Approximately 700 feet south of the concrete slab a 10-foot elevated manhole was observed.

\* None of the above features are shown on the submitted plans or discussed in the Operations Manual. These features must be identified and explained. All drainage and drainage structures located on-site (or under the site) must be discussed and clearly shown on the plans. The effect of such structures and associated drainage on construction of the landfill and the surrounding environment must be assessed.

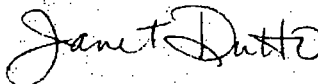
3. A TVA Section 26a Permit may be required for the outfall line(s) from the sediment basin to the river. A permit application is enclosed with this letter.

The following pages contain specific requirements and comments resulting from the review of the Operations Manual and Construction Plans. As previously stated, this site is only suitable for inert wastes, therefore, this review was conducted considering only the disposal of inert wastes at this site.

As you know, this site is currently unregistered and thus is in violation of the Tennessee Solid Waste Act. Pursuant to the show cause meeting held in Nashville on December 19, 1983, the Division has not pursued any additional enforcement action because USPF has been preceeding in good faith to register this site. If this enforcement position is to continue, the amended Construction Plans and Operations Manual must be submitted by October 15, 1986.

We would be happy to meet with you at anytime to discuss the contents of this letter. If you have any questions, please feel free to contact me or Steve Baxter at (624-9921).

Sincerely,



Janet Dutto  
Environmental Engineer  
Division of Solid Waste Management

JD/ss

cc: Division of Solid Waste Management, Nashville  
Dr. Frank Failing, Hamilton County Health Department

## OPERATIONS MANUAL

1. Page 2, each waste that is to be disposed of in the landfill must be specifically named in the Operations Manual. Only inert wastes shall be disposed of in this landfill.
  - (a) What does the demolition debris consist of? Will this debris contain any asbestos?
  - (b) Will wet collector sludge be taken to the landfill? All sludge taken to the landfill must pass the paint filter test to determine the presence of free liquids. No sludge containing free liquids shall be disposed of in the landfill.
  - (c) All other inert waste such as refractories, coke fines, cement linings, inert baghouse dust, etc., must be specifically named in the Operations Manual. (See breakdown in waste file)

2. Analyses that have been conducted on these wastes must be included in the appendix. - *OK, Will be done*

3. Correct any changes in the waste generation numbers. - *I will work up new numbers!* (OK)

4. *OK* There must be a 50-foot buffer zone between any new waste and the river edge (normal pool). - *Is prohibited it is already there!*

5. Page 4, states that the landfill is being mined for scrap iron. According to Jim Book, on June 18, 1986, this is no longer occurring. *Don Montgomery to set up area outside landfill boundary for his scavenging operations - primarily recovery of sand!*

6. Page 5, Fill Operations

Discuss fill progression in detail. State in what direction construction will begin and how it will proceed. State when the sediment basin, ditches, and culverts will be constructed. Discuss how each area will be filled. Indicate length of time for each phase of construction.

Discuss daily fill operations. How often is waste taken to the site? Approximately how much waste is taken to the site daily? Discuss daily cell development, application to working face, number of lifts, compaction, and cover. State the size and working face slope of a typical cell. Explain how bulky demolition debris will be incorporated into the fill progression plan. *sanitary landfill only*

All outslopes in the 100-year floodplain must be covered with two (2) feet of compacted soil. In addition to cover, the outslopes to the west (along the river) must be riprapped up to the 100-year floodplain to prevent erosion of the bank during high river stages. All other final elevations must be covered with one (1) foot of compacted soil. The top four (4) to six (6) inches of soil cover must be a soil which will support growth of native grasses. All outslopes must have slopes no steeper than 3:1. A slope of 2:1 may be acceptable if it can be shown that this steeper slope can be stabilized and maintained. Also a slope stability analysis must be submitted showing that a 2:1 slope, with cover and riprap as required, will produce a minimum safety factor of greater than 1.0 for the previously tested conditions. Slopes steeper than 2:1 are not acceptable; they are difficult to stabilize and maintain.

*MCI will redo their slope stability study and we will attempt to remove requirements for a layer of topsoil. Don Montgomery was asked to get letter from man he discussed seedling with (Dept. of Agriculture) so that he can present it to state*

7. Page 5, Cover and Final Grading

To provide a uniform working surface and to control dust, all wastes (except foundry sand) taken to the landfill must be immediately covered with foundry sand. Wastes must be applied to the working face and covered. The working face, as well as all other areas, must be sloped to drain. No slope shall be so steep as to cause erosion. There shall be no ponding of water on site. As each area reaches its final elevation, it shall immediately be covered by one (1) foot of compacted soil (two (2) feet below 100-year flood elevation). The area must be seeded and revegetated in accordance with the specifications on Sheet 7 of the Construction Plans.

8. Page 6, Operating Equipment - MCI

State how the waste will be hauled to the site. Discuss how it will be unloaded and incorporated into the fill area and working face.

9. Page 7, Projected Refuse and Cover Volumes - MCI

Update these numbers to reflect any changes. Also, include the following:

- a) Calculate projected life and acreage for each phase of construction.
- b) Calculate projected acreage to be used each year.
- c) Calculate the amount of borrow material needed to cover the site. Show that this amount is available on-site or state how this will be obtained.
- d) State total acreage to be permitted. Total acreage to be permitted must include all fill areas, ditches, sediment basin, and any other areas or structures which are utilized in the landfill operations.

10. Page 7, Drainage Facilities

Discuss drainage in more detail. Discuss the system of ditches and culverts and how they combine to enter the sediment basin. Discuss slope and stabilization of the ditches.

The ditches and culverts which run directly into the river are a potential siltation problem. The Operations Manual does not adequately address silt protection of the river. Methods to assure siltation protection of the river must be thoroughly discussed and a silt control plan for the site must be submitted. MCI will address!

As discussed in the attached letter, all drainage and drainage structures (pumping station, pipes, manholes, etc.) must be discussed. The effect of such structures and associated drainage on the construction of the landfill and the surrounding environment must be assessed.

11. Page 9, Landfill Records and Reports - Records will be maintained!

Maintain records on type and amount of waste taken to the landfill. Keep records of surface water and groundwater analyses.

12. Page 9, Landfill Sign - Not required

The sign must state that no hazardous, liquid, or unauthorized waste will be accepted at the landfill. It is recommended that the sign state what wastes are acceptable.

13. Page 10, Dust Control

Also state that dust will be controlled by covering wastes with foundry sand as soon as they are taken to the site.

14. Page 11, Salvaging -

*Land salvaging will be practiced by CSP in area off landfill site only!*  
According to Jim Book (6/18/86), the landfill is no longer being mined for scrap iron. State that before any salvage operations are begun, approval of the operation shall be obtained from the Division of Solid Waste Management.

15. Page 13, Monitoring Requirements

State that surface water and groundwater monitoring of the sediment basin and wells will be conducted on a quarterly basis for the parameters deemed necessary by the DSWM. State how a surface water sample will be obtained from the basin. *He will request this on a semiannual basis!*

16. Page 13, Revegetated Operations

*He propose no top soil. Sen Montgomery to get letter from man he discussed seeding with!*  
State that all final elevations will receive one (1) foot of compacted soil cover (two (2) feet below 100-year floodplain). The top four (4) to six (6) inches of soil cover must be a soil which will support the growth of native grasses. Each area must be seeded and revegetated in accordance with the specifications shown on Sheet 7 of the Construction Plans.

17. Discuss silt control in more detail.

- State within the manual when the sediment basin must be cleaned out and what will be done with the material removed from the basin.
- Address in more detail the ditches and culverts emptying directly into the river. How will siltation of the river be prevented?
- Discuss silt control methods to be employed during construction.
- Submit a silt control plan showing how silt will be controlled at the site.

18. *out* The sediment basin must be designed to accommodate runoff from a 10-year

24-hour storm. In calculating the discharge capacity of the six (6) inch discharge pipe, it was found that the proposed sediment basin can not adequately handle runoff from a 10-year, 24-hour storm. Either the volume of basin must be increased or the size of the discharge pipe increased. The basin must be able to accommodate runoff from this size storm without flowing runoff over the emergency spillway. It should be noted that this area experiences Type II storms; these storms usually receive a major part of their runoff within the early hours of rainfall. It is recommended that a perforated standpipe and a discharge pipe be used. A perforated standpipe will reduce standing water in the basin. If possible, the discharge pipe should be raised to discharge at a higher elevation to prevent river water from backing into the sedimentation basin in flood conditions. *MCI will address this at our meeting with state in Oct!*

*out* 19. The sediment basin must be constructed out of "compacted soil" minimum two (2) feet in thickness. *This will be objected to!*

20. A TVA Section 26a Permit will be required for the outfall line(s) from the sediment basin to the river. This permit must be included in the appendix of the Operations Manual.

*We will explain status of our existing permit application  
We are awaiting approval of our C&O Plans by State to  
complete submitted on TVA appl.!*

## CONSTRUCTION PLANS

### Master Plan

1. Show U.S. Pipe and Foundry's property lines. - *May be difficult to show both plants!*
2. Show boundry of area to be permitted.
3. Show the location of the sewage pumping station and associated pipes.

### Construction Plans

1. Show boundry of total area to be permitted. Total area to be permitted must include all fill areas, ditches, sediment basin, and any areas or associated structures which are utilized in landfill operations.
2. Identify landfill sign locations. - *will spot to signs*
3. Provide a silt control plan which will address how silt will be controlled onsite. In particular, address ditches and culverts draining to river, and silt control during construction stages.
4. Clearly identify all fencing (existing or proposed). - *already shown*
5. Show a typical cell.
  - a. Size of typical cell
  - b. Slope of working face
  - c. Number of lifts
  - d. Amount of cover } *This is not a sanitary landfill*
6. Submit a fill progression plan showing how the site will be filled. This plan must show what direction construction and fill will begin and how it will proceed. *May be unnecessary*
7. Show the location of the groundwater monitoring wells. ✓
8. Show the location of the sampling point of the sediment basin. ✓
9. Show the location of the soil borrow area (if located on site).
10. Show a detailed view of the sediment basin inlet.
11. Show riprap of the western bank.
12. There must be a fifty (50) foot buffer between any new waste and the river (normal pool). This buffer area must be indicated on the plans.
13. Will all terraces be used as access roads and be constructed of compacted slag and gravel (sheet 1 of 4)? If not, indicate which terraces will be considered access roads.

14. Where is the ditch in Section 'E-E'? It is not shown in the cross-sectional view.
15. Show the location of the sewage pumping station and associated ditches, culverts, and manholes. Show how drainage of these structures is occurring on-site.
16. Show how the southeast side of the fill area is drained.

SS.



**MCI / CONSULTING ENGINEERS, INC.**

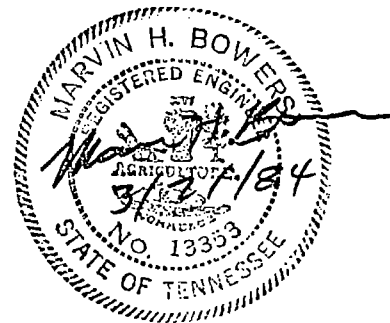
U.S. PIPE AND FOUNDRY COMPANY  
INDUSTRIAL LANDFILL  
CHATTANOOGA, TENNESSEE  
MCI-83-592

*Plans submitted to State!*  
*3-21-84*

Prepared by:

MCI/Consulting Engineers, Inc.  
P.O. Box 23010  
10628 Dutchtown Road  
Knoxville, Tennessee 37933

March 21, 1984



MWPS002329

File

March 28, 1984

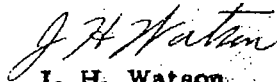
Mr. Steve Baxter, Environmental Consultant  
Tennessee Department of Health and Environment  
Division of Solid Waste Management  
2501 Milne Street  
Chattanooga, Tennessee 37406

Re: Construction and Operation Plans  
for Chattanooga Landfill

Dear Mr. Baxter:

Please find attached five sets of the subject plans and construction drawings for your review and approval. Also attached to this cover letter are the analytical results of distilled water leachate tests performed on three sets of baghouse dust samples. Should you have any questions on the above, please let me know.

Yours very truly,



J. H. Watson  
Principal Environmental Engineer

JHW/js

cc: Mr. Frank Victory

bc: Messrs. W. E. Fleck  
C. N. Coddling  
W. A. Berry  
J. B. Dockery  
D. C. Wallace

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## 1.0 BACKGROUND INFORMATION

U.S. Pipe and Foundry Company operates two foundries in Chattanooga, Tennessee. Foundry sand, cupola slag, cupola baghouse dust, dried sludge and demolition wastes generated at the Soil Pipe plant and the adjacent Valve and Fitting plant have been disposed on plant property along the Tennessee River (Nickajack Lake) for over 30 years. The Tennessee Department of Health and Environment, Division of Solid Waste Management (DSWM), conducted a geologic evaluation of the existing disposal site on June 8, 1983. Based on the results of their investigation, the DSWM classified the site geologically suitable for disposal of foundry sands and requested that U.S. Pipe submit construction and operating plans for continued operation of the site. Accordingly, this manual was developed for registration of the existing U.S. Pipe and Foundry landfill in fulfillment of the "1983 Regulations Governing Solid Waste Disposal in Tennessee".

## 2.0 DESCRIPTION OF OPERATION

Based on records provided by U.S. Pipe and Foundry, the total annual waste generated from both plants and disposed in the existing landfill consists of approximately 48,250 tons. Using an average waste density of 120 pounds per cubic foot (3240 pounds per cubic yard), the approximate yearly waste disposal volume is 30,000 cubic yards. The types of waste currently disposed are listed as follows:

		<u>Totals of both Plants</u>	
<u>Waste Type</u>	<u>Percent of Total</u>		
Foundry sand	79	38,140	TPY
Cleaning room waste	0.4	172	
Slag	1.5	7534	
Cupola Baghouse Dust	1.5	731	
Coke	0.4	200	
Ductile treating baghouse dust	0.2	90	
Cement lining waste	0.2	100	
Process wastewater treatment sludge	1.2	600	
General plant demolition debris	<u>2.1</u>	686	
Total	100	48,250	TPY

Note: Above data used to develop Table I on page 2 of the Chatt. Plant Landfill C90 plan for submitted Jan 15, 1988.

<u>Waste Type</u>	<u>Percent of Total</u>	
Foundry sand	79	} <i>See yellow sheets for complete breakdown!</i>
Cupola slag	14	
Dried wastewater sludge	1.2	
Cupola baghouse dust	1.5	
General plant demolition debris	<u>4.3</u>	
TOTAL	100	

The DSWM has presently approved the site for disposal of foundry sand only. The cupola baghouse dust is generated primarily from combustion of fossil fuels. This dust, which contributes 1.5% of the total waste stream, contains levels of lead and cadmium greater than the allowable limits set forth by E.P. Toxicity testing for hazardous waste determinations; however, wastes generated during combustion of fossil fuels are exempt from the hazardous waste regulations. Accordingly, the DSWM will rule whether the cupola baghouse dust may be ultimately disposed within the subject landfill. The DSWM will also determine if analytical testing is required for the additional components of the waste stream. \*

### 3.0 SITE CONDITIONS

The landfill is located in Chattanooga along the east bank of the Tennessee River at mile 461.5, at north latitude 35°01'53" and west longitude 85°19'24". The proposed landfill comprises approximately 23 acres consisting of the existing 18.4 acre landfill area and 4.5 acres of presently undeveloped area located south of the existing landfill.

The property is owned by U.S. Pipe and Foundry. A location map (1" = 400') is provided in Appendix I.

Based on information provided by the Tennessee Valley Authority (TVA), the elevation of the 100-year flood at the site is 656 feet mean sea level (msl). TVA maintains floodway easement rights to elevation 636 msl and recognizes EL 640 as the maximum shoreline contour. Based on conversations with representatives of the City of Chattanooga and the Corps of Engineers, no permits will be required by those agencies for filling in the 100-year floodplain above elevation 636 msl provided that no structures are constructed. This information was obtained from the following individuals:

John Case, Corps of Engineers, Nashville, Regulatory Functions Branch

Fred Brunker, Chattanooga Planning Commission

Tom Scott, Chattanooga City Engineer

Roy McCollum, Chattanooga Building Inspector

Maximum utilization of the site requires filling below the 640 contour in one location. A TVA Section 26A has been determined to be required and application has been made (see Appendix II).

A letter from Mr. Treasure Rogers of TVA to Mr. Bill Krispin of the DSWM and letters confirming our conversations with the remaining individuals are provided in Appendix II.

### 3.1 Preliminary Regulatory Approval

Site and subsurface conditions have been described previously in reports prepared by the DSWM. Basically, the site was approved for disposal of foundry sand generated at the Chattanooga facilities. Restrictions for use are outlined in a letter from the DSWM dated August 9, 1983. A copy of the letter is provided in Appendix II.

### 4.0 CONSTRUCTION AND OPERATION

The landfill will be used for disposal of waste generated at the Chattanooga facilities only. Further, the landfill will be constructed in a planned sequence, thereby allowing U.S. Pipe to reclaim (establish vegetative growth) disturbed areas as construction progresses.

Outslopes will be constructed at the specified slopes provided in the construction plans. Geologic Associates, Inc. (GA) performed a geotechnical engineering study, which includes a detailed stability analysis of the outslope material, in order to evaluate the suitability of existing slopes and to recommend safe slopes and specific operating criteria for continued landfilling. A copy of GA's report is provided in Appendix III.

The landfill is presently being mined for retrieval of scrap iron by an outside contractor. The iron is sold back to U.S. Pipe for subsequent reuse. In order to continue this process, the contractor will be

required to follow the progression of disposal operations. Upon completion of mining and reshaping operations within each area, all finished surfaces will be seeded and mulched at the first appropriate growing season.

#### 4.1 Fill Operations

The landfill will be divided into two operational areas: the existing landfill and the undeveloped area located immediately south of the existing landfill. The undeveloped area will be constructed following completion of the existing landfill. Details for construction of each phase are provided in the Construction Plans, included as an attachment to this report.

#### 4.2 Cover and Final Grading

Based on the composition of the majority of the wastes disposed, daily and final cover will not be required. However, cupola baghouse dust, wastewater sludge, and demolition wastes will be covered with foundry sand. The site will be graded in accordance with the final contours shown on Sheet 1 of the plans.

The exterior limits of the site will be constructed to final grade as landfilling progresses upward. Sand castings will be placed near the outcrops for added stability, while demolition debris,

sludge and dust will be placed near the center of the fill. Wastes will be placed in lifts no thicker than 18 inches and compacted with the hauling and spreading equipment. In order to achieve added stability, out slopes will be shaped at a slightly steeper inclination than designed and compacted. The slopes should then be graded to their design configuration and immediately seeded and mulched. In this manner, wastes difficult to compact can be removed to prevent surficial sloughing of material. A detailed description of the out slope construction procedures is included in the appended report prepared by Geologic Associates, Inc. (see Appendix III).

#### 4.3 Access Roads

\* Roads providing access to the landfill will be constructed of compacted slag and gravel. The roads will be maintained to provide all-weather access into the site and to safely accommodate truck traffic using the site. Only in-plant roads are used to transport material to the landfill.

#### 5.0 OPERATING EQUIPMENT

U.S. Pipe uses a Caterpillar 920 front-end loader to spread and grade the waste and to construct berms. This machinery is available on a

full-time basis. In the event of equipment breakdown, U.S. Pipe will use similar plant equipment or obtain suitable rental equipment.

#### 6.0 PROJECTED REFUSE AND COVER VOLUMES

Based on our calculations, a total volume of approximately 774,000 cubic yards is available for disposal of industrial waste from the Chattanooga facilities. The undeveloped area located south of the existing fill represents approximately 70,000 cubic yards of this volume. Based on a yearly disposal volume of 30,000 cubic yards, the site could be used by U.S. Pipe for approximately 26 years.

*\* Since all side slopes have been changed to 2 to 1, life has been reduced to approx. 21 years.*

#### 7.0 DRAINAGE FACILITIES

Drainage features have been designed to direct rainfall runoff away from the disposal areas and into the proposed sediment pond. To reduce ponding, all wastes should be deposited in a manner promoting positive drainage toward the impoundment. Silt fences and timely vegetative establishment will be used to prevent sediment from washing off site in areas that will not drain to the proposed basin.

The drainage facilities have been designed to accommodate a <sup>(10 hours)</sup> peak runoff flow resulting from a 10-year, 24-hour storm. Calculations for the design of these drainage and sediment control facilities are provided in

Appendix IV. See Sheets 2, 6 and 7 of the construction plans for details of the drainage and sediment control facilities.

#### 8.0 ADMINISTRATIVE GUIDELINES

##### 8.1 Supervision of Operation

The landfill is operated under the supervision of the Supervisor of Stores and Yard. The supervisor should verify that the site is operated in a safe and environmentally sound manner. The supervisor will be thoroughly familiar with the landfill construction plans and will be able to familiarize any operator with the plans.

##### 8.2 Accident Prevention and Safety

The supervisor has an obligation to maintain safe and secure working conditions for all landfill personnel. This obligation includes that plant safety rules are written, published and given to each employee. First aid supplies for treatment of routine minor injuries will be provided at the site.

### 8.3 Landfill Records and Reports

\* Records of the activity at the landfill are maintained by the supervisor. Activity records are retained at the plant.

### 8.4 Landfill Sign

\* A sign will be provided at the main entrance to the landfill for identification of acceptable wastes. The sign will state that no sanitary or hazardous waste will be accepted.

### 8.5 Site Access and Control

A chain link fence and the Tennessee River completely enclose the site. Access to the site is from plant property only.

### 8.6 On-Site Structures

Landfill operating personnel will use existing plant structures for heat and toilet facilities. There are no permanent or portable structures within the landfill property.

#### 8.7 Future Planning

\* By May 1 of each year, U.S. Pipe will file an estimate of the remaining acreage of the landfill with the DSWM. This report will include the original usable acreage of the site and the remaining unused portion at the time of the report.

#### 8.8 Landfill Closure

An inspection of the entire site shall be conducted by a representative of the DSWM before the site is closed. Any necessary corrective work shall be performed before the closure project is accepted. Arrangements satisfactory to the DSWM shall be made for repair of all cracked, eroded, and uneven areas in the surface during the year following closure of the fill. Upon completion, the landfill site shall be recorded with the Register of Deeds as a former landfill site.

#### 9.0 ENVIRONMENTAL CONSIDERATIONS

##### 9.1 Dust Control

Grass will be planted over finished areas to minimize blowing dust.

\* Water will be applied to the roads during abnormally dry conditions as needed to control excessive dust.

9.2 Blowing Litter

Putrescible trash (litter) is not disposed in the landfill.

9.3 Open Burning

\* No refuse will be burned at the landfill site. In the event accidental fires occur, the fire will be extinguished by smothering or by plant fire protection personnel.

9.4 Salvaging

Salvaging operations are conducted in a controlled manner for retrieval of reusable scrap iron. No scavenging will be allowed at the landfill site by private individuals.

9.5 Special Waste Handling

\* No special wastes other than the wastes approved for disposal by the DSWM will be accepted at the landfill.

9.6 Vector Control

Putrescible waste is not disposed in the landfill.

9.7 Odor Control

Due to the nature of the wastes disposed, no odor problems are anticipated.

9.8 Unauthorized Dumping

Unauthorized dumping will not be allowed.

9.9 Domestic Animals

Domestic animal access to the site is controlled by the chain link fence and the river enclosing the site. No domestic animals will be disposed at the site.

9.10 Contamination Control

As stated in the landfill regulations (Rule 1200-1-7-.06(3)16), "There shall be no contamination of ground or surface waters resulting from deposited solid wastes or their products of decomposition, nor hazard or nuisance caused by gases or other products generated by the biologically or chemically active wastes. Should any liquids or gases which might contaminate ground or surface water or create a hazard or nuisance be released from a registered industrial landfill, then those measures necessary to

eliminate the contamination or nuisance shall be initiated immediately by the registrant. All gaseous or liquid waste discharges shall comply with the existing 'Water Quality Control Act of 1971' (T.C.A. 70-324, et seq.) and the provisions of the 'Tennessee Air Quality Act' (TCA. 53-3408, et seq.). Prior approval should be received from the DSWM before initiating control procedures which require alteration of the approved operating plan."

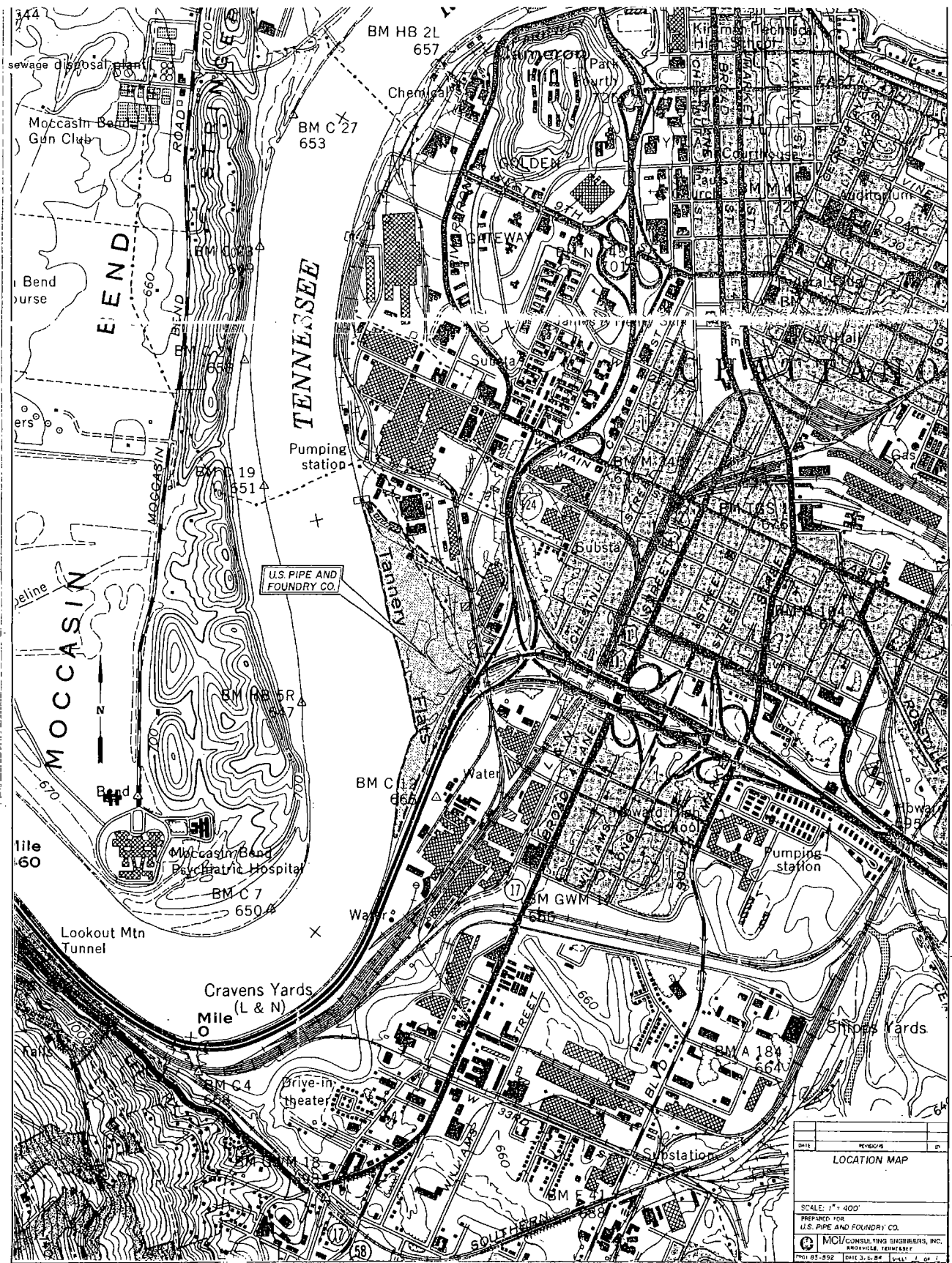
#### 10.0 MONITORING REQUIREMENTS

\* The sediment pond will be used for monitoring of phenols and any other parameters deemed necessary by the DSWM. Monitoring will be conducted on a quarterly basis.

#### 11.0 REVEGETATION OPERATIONS

After each portion of the landfill is completed to final grade, the area will be immediately seeded and mulched in accordance with specifications similar to those provided on Sheet 7 of the Construction Plans.

## APPENDIX I



APPENDIX II

RECEIVED

AUG 30 1983

Plant Engineering



*Jim Smalley*

STATE OF TENNESSEE  
DEPARTMENT OF PUBLIC HEALTH  
SOUTHEAST REGIONAL OFFICE  
2501 MILNE STREET  
CHATTANOOGA, TENNESSEE 37406

August 9, 1983

CERTIFIED MAIL  
234 7955263

Mr. John H. Watson  
Environmental Engineer  
U. S. Pipe and Foundry Company  
3300 First Avenue, North  
Birmingham, Alabama 35202

Re: Geologic Approval - Foundry Sand Disposal Site  
U. S. Pipe and Foundry Company  
Chattanooga

Dear Mr. Watson:

This office has completed the geologic evaluation of an existing on-site foundry sand disposal area proposed for registration by U. S. Pipe and Foundry Company. The site, located on the east side of the Tennessee River at mile 461.5, was visited by Mr. Bill Krispin, staff geologist, on June 8, 1983.

Based on Mr. Krispin's evaluation, the site is considered geologically suitable, with certain restrictions, for disposal of the company's non-hazardous, foundry sand waste. (See enclosed geologic evaluation.)

In order to proceed with site registration, you must now submit detailed site construction and operational plans to this office for review. The plans must be designed to conform with the enclosed geologic restrictions as well as the requirements outlined in Mike Apple's memo dated July 28, 1983, which is also enclosed. Generally, such plans contain a manual outlining daily operational procedures, a plan review of the operation on a scale of one inch equals one hundred feet and cross sections of the site.

The above referenced plans must be submitted to this office within sixty (60) days of receipt of this writing.

If you have questions or need further assistance, please feel free to call me at 615/624-9921.

Cordially yours,

*Steve Baxter*

Steve Baxter  
Environmental Consultant  
Division of Solid Waste Management

SB/ss

enclosures

cc: Mike Apple, Division of Solid Waste Management, Nashville  
Becky Harris, Division of Solid Waste Management, Nashville

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

OFFICE CORRESPONDENCE

DATE: July 28, 1983  
 TO: Regional Offices  
 FROM: J. M. Apple (Thru J. T. Tiesler)  
 SUBJECT: Foundary Sands

FROM	TO	DATE
SWM	Reg.	

In the past several months the proper disposal of foundary sand has been an unresolved problem. The primary concern is that although the material is by definition a "solid waste" the volumes to be disposed, the generally inert characteristics (phenols being an exception), and the desirability as fill material has created a void in the Divisions permitting process. Therefore, the following guidance was drafted.

Potential problems:

- 1) Phenol release to the environment.
- 2) Siltation problems and general fill stabilization.
- 2) Final grade.

Fill requirements:

- 1) Material defined as non hazardous (i.e. E P Toxicity).
- 2) Phenols less than 15 ppm.
- 3) Fill not in ground or surface waters of the State (including floodplain unless proper permits obtained).
- 4) Vegetative stabilization of surface upon fill to final grade.

"Plan requirements"

- 1) Plan and profile of existing and final grade.
- 2) Fill sequence - objective of bringing areas to final grade as soon as possible.
- 3) Silt pond design to control runoff of entire site with quarterly monitoring for phenols and any other parameters deemed necessary by review of casting process.

The above guidance is general and is to be used at the discretion of the field office manager. Requirements are at a minimum and may be expanded as necessary.

JMA/dlc 4-6



STATE OF TENNESSEE  
DEPARTMENT OF PUBLIC HEALTH  
CORDELL HULL BUILDING  
NASHVILLE, TENNESSEE 37219

July 27, 1983

Hamilton County

Subject: Geologic evaluation of a foundry sand disposal site for US Pipe and Foundry in Hamilton county.

Date of Visit: June 8, 1983

Category: Industrial

Applicant: US Pipe and Foundry

Site Description

Facility: Existing

Waste Types: Foundry Sands

Location: Chattanooga Quadrangle (105-SE)

The site is located on the east side of the Tennessee River at mile 461.5.

Latitude: 35° 01' 55" Longitude: 85° 19' 25"

Topography: Most of the area has been filled with foundry sands so the natural topography has been changed. The area to the south of the sand is a very gentle, almost flat area. The sands are an estimated 30 feet or more in depth. Old sand areas are used for storage and parking facilities. The active disposal area is currently being mined to recover metal from the sands.

The slopes of the sand, near the river, are steep to very steep with an abundance of vegetation growing on them.

Geologic Setting

Bedrock: Mississippian age Fort Payne chert

Lithology: The Fort Payne is limestone and dolomite, highly siliceous, gray, fine to coarse grained, weathers to thick chert ledges. At the base is the Maury shale, a thin pale green shale.

Beaneath the Fort Payne is the Chattanooga shale which is shale,

brownish black, bituminous and fissile.

Because of the location, next to the river, the surface geology might consist of some alluvial material.

Structure: The beds should be dipping to the southeast. The area has undergone some faulting so the beds might be fractured. The Rockwood formation has been thrust over the Fort Payne chert.

(Geologic Map and Mineral Resources Summary of the Chattanooga Quadrangle, Tennessee.)

Unconsolidated Material: The Fort Payne is usually deeply weathered and consists of a rubble of chert in a silty clay soil. Any alluvium present will be poorly sorted and consist of sands, silts, clays and gravel.

The Soil Survey of Hamilton County lists the soil present as being the Huntington silt loam. It is derived from alluvium washed largely from soils underlain by limestone and exhibits a high water table.

#### Hydrology

Runoff Directions: Drainage from the sand will be to the west and east.

Receiving Stream: The site will drain to the Tennessee River. The small amount of runoff that flows to the east will enter a culvert beneath the sand and flow to the Tennessee River.

Flooding: The site is in the floodplain of the Tennessee River. According to the Environmental Geology of Hamilton County, Tennessee (Sitterly and Wilson, 1978), the site is within the 100 year flood boundary. Also, the following flood information has been provided by the Tennessee Valley Authority:

<u>Mile</u>	<u>Elevations</u>	
	<u>100-Year Flood</u>	<u>Structure Profile</u>
461.0	655.5	668.0
462.0	656.0	668.0

Other Surface Water Data: Older maps of the area show part of the site once contained backup water from the Tennessee River.

Ground Water: Ground water in the area should be shallow and will likely be affected by the river. Shallow ground water should be found in the alluvium and/or residuum. Ground water movement should be towards the river. Deeper water will be found in the Fort Payne (limestone and dolomite) and will probably be moving in a southeasterly direction.

No seeps were evident at the base of the sand.

Previous Investigation: During the Open Dump Inventory, the Division of Solid Waste Management reviewed this site. The site was found in noncompliance in the categories of floodplain and surface water discharge and put on a compliance schedule.

A 11/20/81 letter from this Division said the E P Toxicity test and the Phenol analysis indicated the waste does not pose a hazardous problem.

#### Recommendations

The site is only marginally suitable for use due to the flooding, shallow water and the soil and rock type present. However, due to the nature of the waste (foundry sands), the site presently being used as well as the area south of the sand is suitable for disposal. There are, however, some restrictions which must be placed on the site.

- 1) The site is only for the disposal of foundry sands. Some of the area contains demolition waste, trash, 55 gallon drums and ash.
- 2) No water should be allowed to pond on any portion of the site.
- 3) The site is to be properly stabilized to ensure against erosion and siltation and against possible washout due to flooding.
- 4) The Tennessee Valley Authority has flood easement rights in the area and they must be contacted for the proper permits, if necessary, for the filling a floodplain.

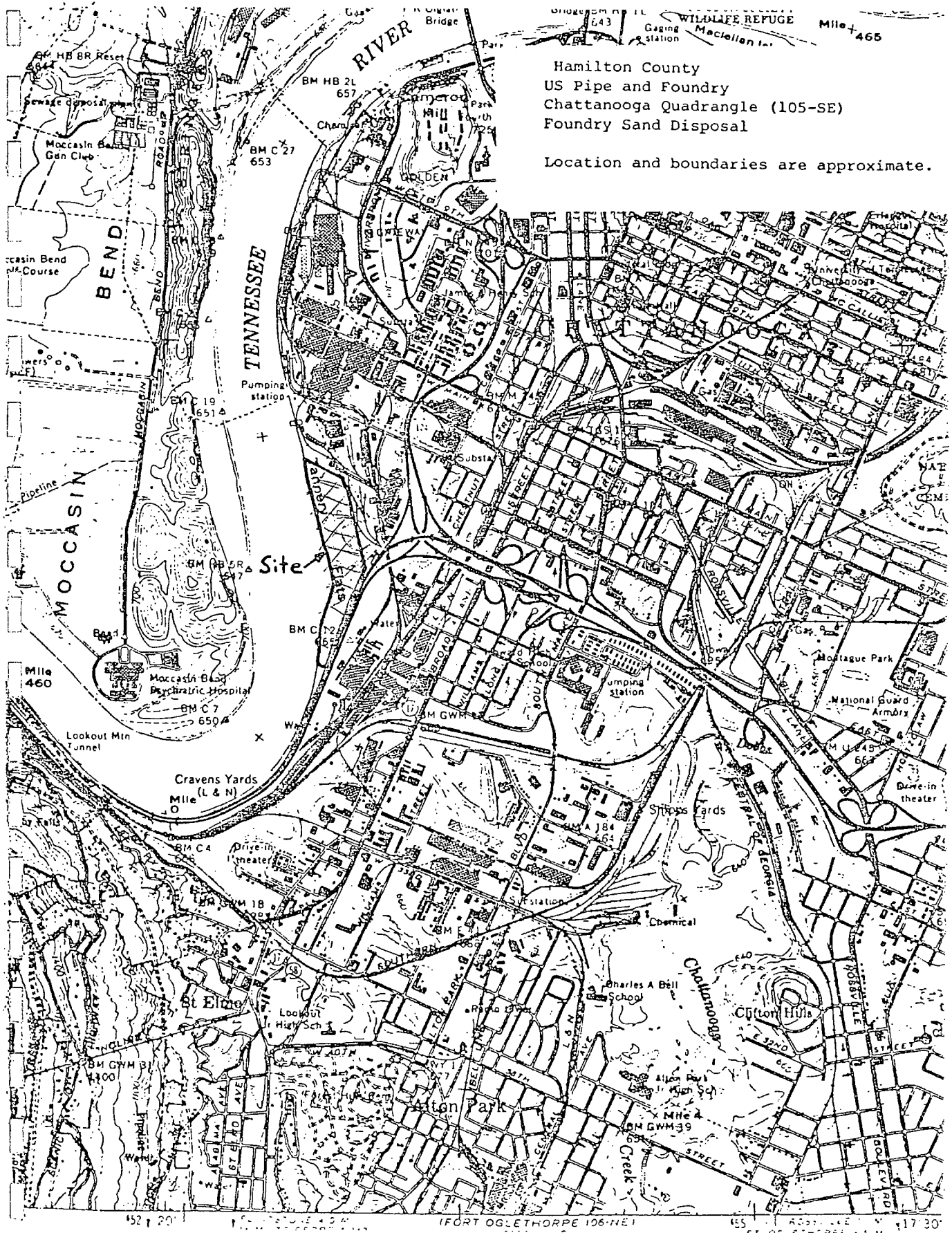
Also, the City of Chattanooga must be contacted for permits, requirements, etc. the city might have in regards to filling a floodplain.

Recommendations concerning the suitability of the site may be changed upon review of additional information.

*William Krispin*

William Krispin  
Geologist  
Division of Solid Waste Management

WK/pas



Hamilton County  
US Pipe and Foundry  
Chattanooga Quadrangle (105-SE)  
Foundry Sand Disposal

Location and boundaries are approximate.

MWPS002356

**TENNESSEE VALLEY AUTHORITY**

Cleveland, Tennessee 37311  
66 Mouse Creek Road

July 22, 1983

Mr. Bill Krispin  
Tennessee Department of Health & Environment  
Division of Solid Waste Management  
701 Broadway, B-30  
Nashville, Tennessee 37203

Dear Bill:

This responds to your request for flood hazard information on property located on the right overbank of the Tennessee River between river miles 461.0 and 462.0. Listed below are the 100-year flood and Tennessee Valley Authority (TVA) Structure Profile elevation at the subject miles.

<u>Miles</u>	<u>Elevations</u>	
	<u>100-Year Flood</u>	<u>Structure Profile</u>
461.0	655.5	668.0
462.0	656.0	668.0

The TVA Structure Profile is a contour established by TVA which marks the elevation below which structures or any other forms of development that are subject to significant damage are prohibited on all lands which TVA either owns or has certain landrights. The profile was developed to avoid increasing the flood damage potential in areas affected by reservoir operations. According to our Office of Natural Resources (ONR), TVA has flood easement rights on some properties located on the east overbank. I would suggest that you contact Greg McKibben of ONR to ascertain information on the specific site with which you are concerned. Mr. McKibben can be reached by telephone at (615)745-1783.

Enclosed is a reproduced portion of the Floodway Flood Boundary Map (panel 20) prepared for Chattanooga, Tennessee. Shown thereon are the limits of the 100-year floodplain floodway, and floodway fringe. No development involving fill material is permitted within the floodway. Development requiring the use of fill material and structures are permitted within the floodway fringe. We would recommend that you contact Don Young of the Chattanooga Building Inspector's office to ascertain specific local building requirements. Mr. Young can be reached by telephone at (615)757-5105. Also enclosed for your information is a reproduced portion of the TVA Quadrangle Map (number 105-SE).

2

Mr. Bill Krispin  
July 22, 1983

If I can be of further assistance feel free to call on me.

Sincerely,

*Treasure*

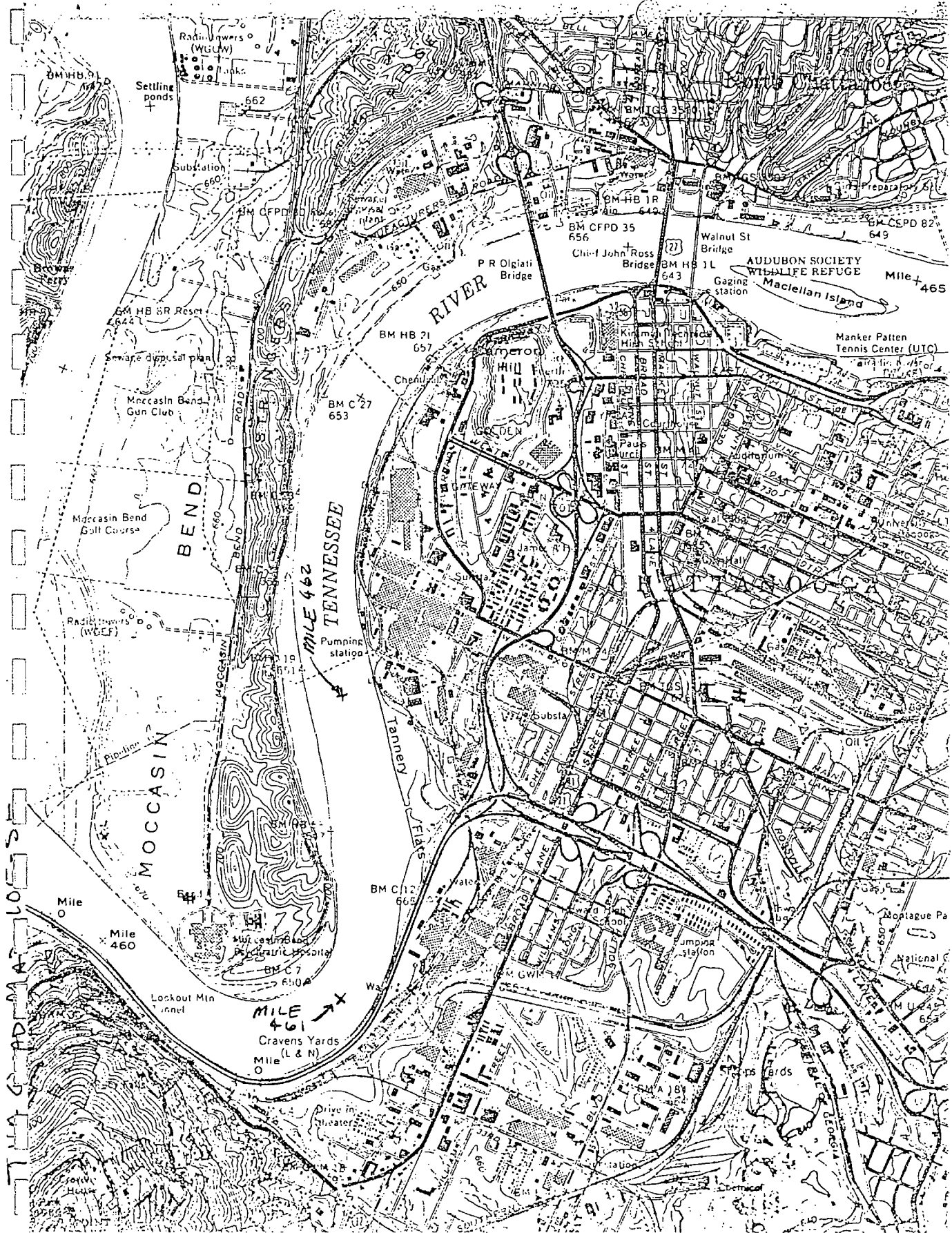
Treasure H. Rogers, Jr.  
Floodplain Specialist  
Floodplain Management Branch

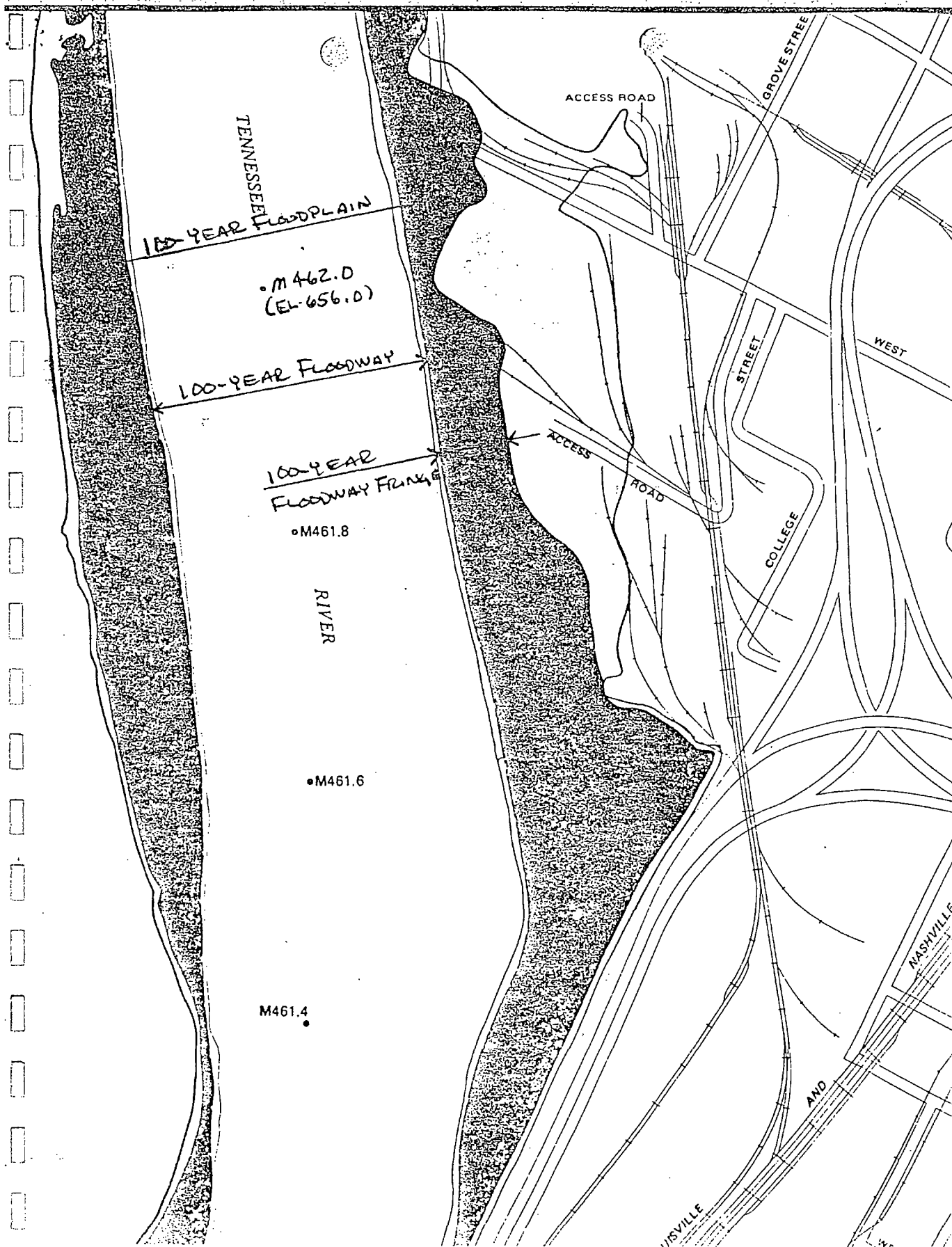
Enclosures

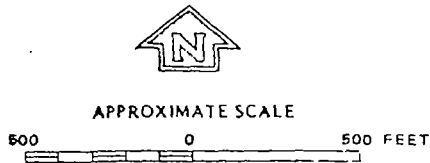
cc (Enclosures):

Mr. Don Young  
Chattanooga Building Inspection Office  
Room 44, City Hall  
Chattanooga, TN 37402

MWPS002358







**NATIONAL FLOOD INSURANCE PROGRAM**

**FLOODWAY  
FLOOD BOUNDARY AND  
FLOODWAY MAP**

**CITY OF  
CHATTANOOGA,  
TENNESSEE  
HAMILTON COUNTY**

**PANEL 20 OF 30**

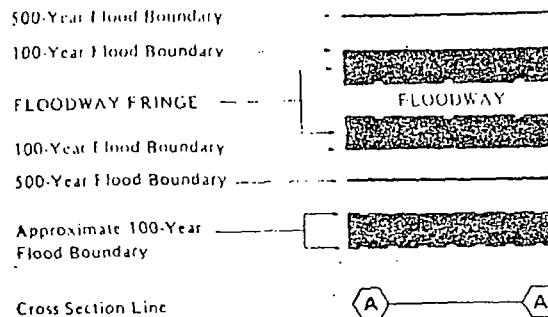
(SEE MAP INDEX FOR PANELS NOT PRINTED)

**COMMUNITY-PANEL NUMBER  
470072 0020 A**

**EFFECTIVE DATE:  
SEPTEMBER 3, 1980**



**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT  
FEDERAL INSURANCE ADMINISTRATION**



Elevation Reference Mark

RM7 X

River Mile

• M1.5

**NOTES TO USER**

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to support minimum flood plain management regulations; it may not show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.





**MCI/CONSULTING ENGINEERS, INC.**

P. O. Box 23010  
10628 Dutchtown Road  
Knoxville, Tennessee 37933-1010  
Telephone (615) 966-9788

Corporate Headquarters:  
Nashville, Tennessee

Branch Offices:  
Knoxville, Tennessee  
Denver, Colorado  
Huntsville, Alabama

March 7, 1984

Mr. Fred Bruner  
Chattanooga Planning Commission  
200 Mayfield Annex  
123 East 8th Street  
Chattanooga, TN 37402

RE: U.S. Pipe and Foundry Company  
Industrial Landfill; MCI-83-592

Dear Mr. Bruner:

On January 10, 1984, I called to determine if any Planning Commission approvals would be required relative to filling within a Flood Hazard Zone. You advised that there were no restrictions or approvals required for filling within the Flood Hazard Zone, which is defined as the 100-year flood, if no fill were placed within the designated floodway. MCI has proceeded with design of the facility with all fill to be placed above the TVA flowage easement. We, therefore, will not be applying for any Planning Commission approval.

Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.  
Senior Civil Engineer

MHB:j11



**MCI/CONSULTING ENGINEERS, INC.**

P. O. Box 23010  
10628 Dutchtown Road  
Knoxville, Tennessee 37933-1010  
Telephone (615) 966-9788

Corporate Headquarters:  
Nashville, Tennessee

Branch Offices:  
Knoxville, Tennessee  
Denver, Colorado  
Huntsville, Alabama

March 7, 1984

Mr. Roy McCollum  
Building Inspector  
City of Chattanooga  
Inspection Division  
Room 44, City Hall  
Chattanooga, TN 37402

RE: U.S. Pipe and Foundry Company  
Industrial Landfill; MCI-83-592

Dear Mr. McCollum:

This is to confirm our conversation of January 10, 1984 concerning construction of the referenced facility within the flood hazard zone of the Tennessee River. You advised that your office would be involved only if structures were to be constructed in this area. There will be no structures constructed as a part of the project and there will therefore be no further coordination with the Building Inspection Department.

Please contact me as soon as possible if you do not agree with the above summary of our discussion.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.  
Senior Civil Engineer

MHB:jll



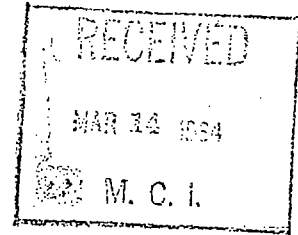
City of Chattanooga

DEPARTMENT OF  
PUBLIC WORKS

Chattanooga, Tennessee 37402

PAUL F. CLARK  
COMMISSIONER

March 9, 1984



Mr. Marvin H. Bowers, P.E.  
MCI Consulting Engineers, Inc  
P.O. Box 23010  
Knoxville, TN 37933

RE: U.S. Pipe and Foundry Co.  
Industrial Landfill; MCI-83-592

Dear Mr. Bowers:

This letter is to further clarify the position of the Building Inspection Department.

It is true that I advised you that a building permit is not required unless a building or structure is constructed on the site. I referred you, at the time you called, to discuss the filling procedure with Mr. Joe Booth of the City Development Section.

To help you with your landfill project I wish to refer you to Steve Baxter  
Environmental Consultant  
Tennessee Department of Public Health  
2501 Milne Street  
Chattanooga, TN 37406 Phone 624-9921

Any work required by a licensed plumber and any work required by a licensed electrical contractor should be properly permitted through the Building Inspection Department.

We do wish you well in this venture and will assist in any way possible.

Very truly yours,

*Roy E. McCollum*  
Roy E. McCollum  
Codes Coordinator

REM:mc

MWPS002365



**MCI/CONSULTING ENGINEERS, INC.**

P. O. Box 23010  
10628 Dutchtown Road  
Knoxville, Tennessee 37933-1010  
Telephone (615) 966-9788

Corporate Headquarters:  
Nashville, Tennessee

Branch Offices:  
Knoxville, Tennessee  
Denver, Colorado  
Huntsville, Alabama

March 7, 1984

Mr. John Case  
U.S. Corps of Engineers  
Regulatory Branch  
P.O. Box 1070  
Nashville, TN 37202

RE: U.S. Pipe and Foundry Company  
Industrial Landfill; MCI-83-592

Dear Mr. Case:

On January 10, 1984, I called to determine if a Corps of Engineers, 404 permit would be required for the referenced project. You advised that the permit would be required only if fill were discharged below ordinary high water of the Tennessee River. MCI has proceeded with design of the facility with all fill to be placed above the TVA flowage easement. The 404 permit should therefore not apply to the project and no application is planned.

Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.  
Senior Civil Engineer

MHB:jll



**MCI/CONSULTING ENGINEERS, INC.**

P. O. Box 23010  
10628 Dutchtown Road  
Knoxville, Tennessee 37933-1010  
Telephone (615) 966-9788

Corporate Headquarters:  
Nashville, Tennessee

Branch Offices:  
Knoxville, Tennessee  
Denver, Colorado  
Huntsville, Alabama

March 7, 1984

Mr. Richard Tomshack  
Tennessee Valley Authority  
464 Lupton Building  
Division of Land Management  
Chattanooga, TN 37401

RE: U.S. Pipe and Foundry Company  
Industrial Landfill; MCI-83-592

Dear Mr. Tomshack:

On January 17, 1984, I called to determine if a TVA Section 26A approval would be required for the referenced project. You advised that TVA maintained a flowage easement for the Tennessee River to Elevation 636 M.S.L. in the vicinity of the project and that no 26A approval would be required if all fill was placed above that contour. MCI has therefore proceeded with design based on all fill being placed above Elevation 636 M.S.L. and will not make application for section 26A approval.

Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.  
Senior Civil Engineer

MHB:j11



**MCI/CONSULTING ENGINEERS, INC.**

P. O. Box 23010  
10628 Dutchtown Road  
Knoxville, Tennessee 37933-1010  
Telephone (615) 966-9788

Corporate Headquarters:  
Nashville, Tennessee

Branch Offices:  
Knoxville, Tennessee  
Denver, Colorado  
Huntsville, Alabama

March 7, 1984

Mr. Tom Scott  
City of Chattanooga  
Engineering Department  
Room 26, City Hall  
10th and Newby Street  
Chattanooga, TN 37401

RE: U.S. Pipe and Foundry Company  
Industrial Landfill; MCI-83-592

Dear Mr. Scott:

On January 10, 1984, I called to determine if there were any City of Chattanooga restrictions on filling adjacent to the Tennessee River at an elevation lower than the 100-year flood but above the designated floodway. You advised that there were no City restrictions, providing no habitable structures were constructed, but that the project should comply with Tennessee Division of Health and Environment requirements for sediment control.

MCI has proceeded with design of the facility with all fill to be placed above the TVA flowage easement, with no structures, and in compliance with TDHE sediment control requirements. Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.  
Senior Civil Engineer

MHB:jl1

APPENDIX III

GEOTECHNICAL STUDY  
U.S. PIPE INDUSTRIAL LANDFILL  
CHATTANOOGA, TENNESSEE  
GA FILE 83-0417K

## TABLE OF CONTENTS

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March 23, 1984

MCI/Consulting Engineers, Inc.  
P.O. Box 20301  
Knoxville, Tennessee 37933

Attn: Mr. Marvin Bowers

RE: Geotechnical Study  
U.S. Pipe Industrial Landfill  
Chattanooga, Tennessee  
GA File 83-0417K

Gentlemen:

With reference to the above project, we have completed a modest geotechnical study and presented herewith are the data, our comments and recommendations. The purpose of this study is to assess the factors of safety against instability of the waste fill as it presently exists, and to propose a stable final configuration. Important information regarding the limitations of geotechnical studies is included as Section I.

#### SITE CONDITIONS

As shown by the Plan (Section III), the site being used by U.S. Pipe for their landfilling operations consists of more than 22 acres within the southernmost parcel of U.S. Pipe property. The site is located within the corporate limits of Chattanooga, Tennessee and is bounded on the east by Interstate Highway 24 and on the west by the Tennessee River. The location map included on the Plan shows the site's location with regard to nearby topographic and cultural features.

Presently, waste has been disposed within the northern three-fourths of the site. As shown on the appended Profiles, the crest of the waste fill ranges from about elevation 695 feet at the southern end of the waste pile to approximately elevation 655 feet at the northern end. The outslope on the west end of the site has an inclination of about 1.5 horizontal to 1 vertical, where it rests on the bank of the Tennessee

MCI/Consulting Engineers, Inc.  
March 2, 1984  
Page 2

River (normal pool elevation is about 634 feet). Surface drainage in the area of the waste fill is fair to poor with the majority of the surface runoff flowing toward the river.

The southern one-fourth of the site is covered by dense vegetation and has a surface elevation ranging from 640 to 645 feet. Surface drainage in this undisturbed and unfilled area is good and toward the river.

#### EXPLORATION AND TESTING

Seven holes were drilled in conformance with ASTM D 1586 (Standard Penetration Test and Split-Barrel Sampling of Soils). In conjunction with this drilling, relatively undisturbed Shelby tube samples (ASTM D 1587) were recovered from selected borings. The locations of these borings and the depths at which the samples were obtained are shown on the Plan and Profiles (Section III).

The soil and waste samples were visually classified by members of our professional staff. Representative samples were tested for grain size distribution, Atterberg limits, unit weight determinations and triaxial compressive strength. Results of the laboratory testing are included in Section II. The soil samples not consumed during testing will remain on file at our Knoxville office for a period of six months, after which time they will be discarded unless we are instructed otherwise.

#### SUBSURFACE CONDITIONS

The fill, which consists of sand castings (i.e., sandstone-like fragments ranging in size from gravel to boulders), glass, sand, clay, bentonite, and debris, ranges in thickness from approximately 20 feet to 60 feet and is primarily medium dense to dense. Overall, the waste has a relatively high shear strength and a moderately high coefficient of permeability. Beneath the fill, at an average elevation of 635 feet, the borings encountered alluvial soil consisting of brown, silty, sandy, clay. The alluvial soil has a consistency which ranges from soft to

MCI/Consulting Engineers, Inc.  
March 2, 1984  
Page 3

stiff and extends to at least the bottom of our borings. Beneath the waste fill where the alluvium has consolidated to a stiff consistency, it possesses a relatively high shear strength.

\* Ground water was generally found to coincide with the level of the Tennessee River. Considering the permeability of the fill, we expect that the ground water will respond rapidly to fluctuations in the river level.

#### DESIGN CONSIDERATIONS

We have reviewed the drawings showing the existing site configuration and the preliminary drawings showing the proposed fill configuration as it will exist upon abandonment. Accordingly, the existing fill and the proposed final fill must be analyzed for potential slope instability during three conditions: (1) steady state seepage; (2) rapid drawdown; and (3) dynamic (earthquake) loading. Phreatic levels within the fill, as measured during the past few months, are used in our assessment of stability during steady state seepage conditions. In our analysis of the rapid drawdown condition, we have used the 100-year flood elevation of 656 feet (as estimated by the Tennessee Valley Authority) for the Tennessee River. Finally, the site is situated in earthquake zone 2 (moderate risk) and an earthquake acceleration factor of 0.1 was used in our pseudo-static analysis.

The following analyses and recommendations are based on the preceding design considerations. Any changes in the slope configuration or waste composition and consistency will require our review of the recommendations.

#### STABILITY OF EXISTING WASTE FILL

A stability analysis was performed for the critical section of the existing fill using effective strength parameters as determined during the triaxial testing of undisturbed samples of waste and alluvial soil.

MCI/Consulting Engineers, Inc..  
March 2, 1984  
Page 4

Results of the laboratory testing of the waste indicate that it has an effective cohesion of 900 PSF and an effective angle of internal friction of 35°. However, in the stability analyses, we conservatively used an effective cohesion of 100 PSF and an effective angle of internal friction of 35°. For the alluvial soil, the measured effective cohesion of 0 PSF and effective angle of internal friction of 33° were used in the analysis of the existing fill. The stability analysis was performed with the aid of a digital computer using the Janbu circular arc analysis. The computer program used is entitled STABL and was developed during the Joint Highway Research Project HRP-7906 by Purdue University and the Indiana State Highway Commission.

As previously described, the outslope of the waste fill near the river exists at an inclination of about 1.5 horizontal to 1 vertical. Table 1 contains a summary of the factors of safety against instability as calculated for the critical slope on the western face of the waste fill.

TABLE 1  
Results of Stability Analysis for  
Existing Slope Configuration

<u>Condition</u>	<u>Minimum Factor of Safety</u>
Steady State Seepage	1.4
Rapid Drawdown	1.0
Dynamic (Earthquake) Loading	1.1

As shown in the above table, the existing slope will be at a condition near failure during rapid drawdown. Consequently, modifications to this existing slope will be required before the remaining portions of the fill are constructed. Details of the recommended modifications to the existing slope and our assessment of the factor of safety for the

MCI/Consulting Engineers, Inc.  
 March 2, 1984  
 Page 5

proposed final configuration of the waste fill are included in the following section.

COMMENTS AND RECOMMENDATIONS

Raising Existing Fill

As shown on Sheet 3, Section III, and on your proposed plan of the final waste configuration, we recommend that a bench be excavated into the existing slope of the fill near the river. This bench should be 25 feet wide and should be excavated to an elevation of about 660 feet. Above the bench, the slope should be cut at an inclination of 2 horizontal to 1 vertical. Based on our recommendations, you have designed the slope above the existing fill using inclinations of 2 horizontal to 1 vertical on the west side near the river and 1.5 horizontal to 1 vertical on the east side of the fill away from the river.

Table 2 summarizes the factors of safety for the proposed final configurations as described above and as shown on our Sheet 3, Section III.

TABLE 2.

<u>Condition</u>	<u>Minimum Factor of Safety</u>
Steady State Seepage	1.5
Rapid Drawdown	1.2
Dynamic (Earthquake) Loading	1.2

The locations of the critical failure surfaces along with the respective minimum factors of safety are included in Section III.

In placing the additional waste fill, we recommend that debris be placed toward the center of the fill and that only the sand castings waste be placed near the outslopes. Moreover, the waste should be placed in maximum 18 inch thick lifts and it should be compacted with the hauling

MCI/Consulting Engineers, Inc.  
 March 2, 1984  
 Page 6

and spreading equipment. The ditches and the crest of the pile should be sloped to drain to reduce the possibility for water to pond.

Although the analyses indicate that the mass stability of the proposed fill will meet accepted standards, special provisions will be required to reduce the potential for shallow failure on the outslopes. Specifically, as shown on Sheet 4, the slopes should be constructed at a slightly steeper inclination than designed, and special effort should be made to compact the waste near the outslope as the fill is being constructed. Periodically, the slopes should be graded (excavated) to their design configuration. In this manner, the waste on the outermost portion of the slope which is difficult to compact can be removed as the fill is being constructed rather than allowing surficial sloughs of poorly compacted material to occur.

#### Southern Extension of Waste Fill

Before the waste fill is extended to the southern part of the site, the area should be cleared and grubbed. Afterwards, the area to receive fill should be proofrolled using the loaded waste hauling equipment. Soft or otherwise deleterious material (organics, etc.) so delineated should be excavated to stable ground. As an alternative, filter fabric can be placed above soft areas and the waste can be placed on the filter fabric for stabilization purposes. Further, if seeps are found to be issuing from areas to receive fill, rockfill drains wrapped in filter fabric (see Sheet 4) should be installed to collect the water and to discharge it beyond the toe of the proposed fill. Fill placement procedures should follow those as described in the previous section.

#### Scour Protection

Scour of waste at the toe of the existing fill and at the toe of the proposed extension by the Tennessee River could have a detrimental effect on the stability of the fill. Therefore, the outslopes should be routinely inspected at periodic intervals and following high river


MCI/Consulting Engineers, Inc.  
March 2, 1984  
Page 7

stages. Scour of the waste encountered during these inspections should be repaired immediately. If practical, the larger sand castings (i.e. boulders) should be placed along the toe of the waste fill near the river to serve as rip rap protection from the Tennessee River.

Geologic Associates, Inc., appreciates this opportunity to be of service to you on this project. If you have any questions, please feel free to contact the writers.

Respectfully submitted,

GEOLOGIC ASSOCIATES, INC.

  
T. L. Primm  
Staff Engineer

  
Barry K. Thacker, P.E.  
Tennessee Registration #14410

TLP/BKT/bf

SECTION 1

# IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

More construction problems are caused by site subsurface conditions than any other factor. As troublesome as subsurface problems can be, their frequency and extent have been lessened considerably in recent years, thanks to the Association of Soil and Foundation Engineers (ASFE).

When ASFE was founded in 1969, subsurface problems were frequently being resolved through lawsuits. In fact, the situation had grown to such alarming proportions that consulting geotechnical engineers had the worst professional liability record of all design professionals. By 1980, ASFE-member consulting soil and foundation engineers had the best professional liability record. This dramatic turn-about can be attributed directly to client acceptance of problem-solving programs and materials developed by ASFE for its members' application. *This acceptance was gained because clients perceived the ASFE approach to be in their own best interests.* Disputes benefit only those who earn their living from others' disagreements.

The following suggestions and observations are offered to help you reduce the geotechnical-related delays, cost-overruns and other costly headaches that can occur during a construction project.

## A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

A geotechnical engineering report is based on a subsurface exploration plan designed to incorporate a unique set of project-specific factors. These typically include: the general nature of the structure involved, its size and configuration; the location of the structure on the site and its orientation; physical concomitants such as access roads, parking lots, and underground utilities, and the level of additional risk which the client assumed by virtue of limitations imposed upon the exploratory program. To help avoid costly problems, consult the geotechnical engineer to determine how any factors which change subsequent to the date of his report may affect his recommendations.

Unless your consulting geotechnical engineer indicates otherwise, *your geotechnical engineering report should not be used:*

- When the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership, or
- for application to an adjacent site.

*A geotechnical engineer cannot accept responsibility for problems which may develop if he is not consulted after factors considered in his report's development have changed.*

## MOST GEOTECHNICAL "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site exploration identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are extrapolated by the geotechnical engineer who then renders an opinion about overall subsurface conditions, their likely reaction to proposed construction activity, and appropriate foundation design. Even under optimal circumstances actual conditions may differ from those opined to exist, because no geotechnical engineer, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. For example, the actual interface between materials may be far more gradual or abrupt than the report indicates, and actual conditions in areas not sampled may differ from predictions. *Nothing can be done to prevent the unanticipated, but steps can be taken to help minimize their impact.* For this reason, most experienced owners retain their geotechnical consultant through the construction stage, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

## SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions may be modified by constantly-changing natural forces. Because a geotechnical engineering report is based on conditions which existed at the time of subsurface exploration, *construction decisions should not be based on a geotechnical engineering report whose adequacy may have been affected by time.* Speak with the geotechnical consultant to learn if additional tests are advisable before construction starts.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

## A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical engineering report. To help avoid these problems, the geotechnical engineer should be retained to work with other appropriate design professionals to explain relevant geotechnical findings and to review the adequacy

of their plans and specifications relative to geotechnical issues.

### **BORING LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT**

Final boring logs are developed by the geotechnical engineer based upon his interpretation of field logs (assembled by site personnel) and laboratory evaluation of field samples. Only final boring logs customarily are included in geotechnical engineering reports. *These logs should not under any circumstances be redrawn* for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimize the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To minimize the likelihood of boring log misinterpretation, *give contractors ready access to the complete geotechnical engineering report*. Those who do not provide such access may proceed under the *mistaken* impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes which aggravate them to disproportionate scale.

### **READ RESPONSIBILITY CLAUSES CLOSELY**

Because geotechnical engineering is based extensively on judgement and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against geotechnical consultants. To help prevent this problem, geotechnical engineers have developed model clauses for use in written transmittals. These are *not* exculpatory clauses designed to foist the geotechnical engineer's liabilities onto someone else. Rather, they are definitive clauses which identify where the geotechnical engineer's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your geotechnical engineering report, and you are encouraged to read them closely. Your geotechnical engineer will be pleased to give full and frank answers to your questions.

### **OTHER STEPS YOU CAN TAKE TO REDUCE RISK**

Your consulting geotechnical engineer will be pleased to discuss other techniques which can be employed to mitigate risk. In addition, the Association of Soil and Foundation Engineers has developed a variety of materials which may be beneficial. Contact ASFE for a complimentary copy of its publications directory.

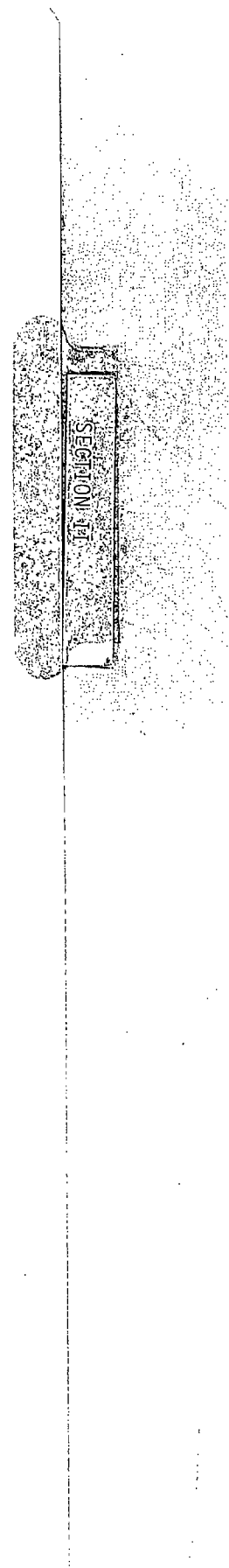
Published by

# **ASFE**

ASSOCIATION OF SOIL AND FOUNDATION ENGINEERS

8811 Colesville Road/Suite 225  
Silver Spring, Maryland 20910  
301/565-2733

SECTION 111



# SUMMARY OF LABORATORY TEST RESULTS

Hole No.	Sample No.	SAMPLE TYPE *	Depth (ft)	Natural Moisture (%)	UNIT WEIGHT (PCF)		Atterberg Limits		UNIFIED SOIL CLASSIFICATION	TRIAXIAL SHEAR TEST		OTHER TESTS **	Soil Description
					WET	DRY	Liquid Limit (%)	Plasticity Index (%)		ANGLE OF INTERNAL FRICTION, $\phi$	COHESION C (PSF)		
													Project <u>U.S. Pipe Landfill</u> Project No. <u>83-0417 K</u> Date <u>March 1, 1984</u>
1	1	ST	48.5-50.5	31.1	117.2	89.4				**	**		SILT, sandy, micaceous, brown
2	1	ST	18.5-20.0	15.6	120.1	104.1	40	17	CL	**	**		CLAY, silty, black, with slag
2	10	SS	43.5-45.0	26.1									SAND, silty, black, with slag
4	5	SS	18.5-20.0	30.9			40	12	ML				SILT, clayey, very sandy, slightly micaceous, greyish-brown
5	4	SS	13.5-15.0	32.0			30	7	CL/ML			*** S	CLAY, silty, slightly sandy, micaceous grey
5	5	SS	20.5-22.0	32.3					S7/SM			S	SAND, slightly silty, micaceous, greyish brown
7	1	ST	18.5-20.5	31.5	121.1	92.4	44	16	CL/ML	**	**		CLAY, silty, micaceous, brown

\* ST-SHELBY TUBE SAMPLE, SS-SPLIT SPOON SAMPLE, B-BAG SAMPLE \*\*\* Sieve analysis indicates 66.7% passing #200 sieve

\*\* TEST RESULTS REPORTED ON OTHER SHEETS:

C-CONSOLIDATION

S-SIEVE OR GRAIN SIZE ANALYSIS

U-UNCONFINED COMPRESSION TEST

D-DIRECT SHEAR TEST  
T-TRIAXIAL TEST

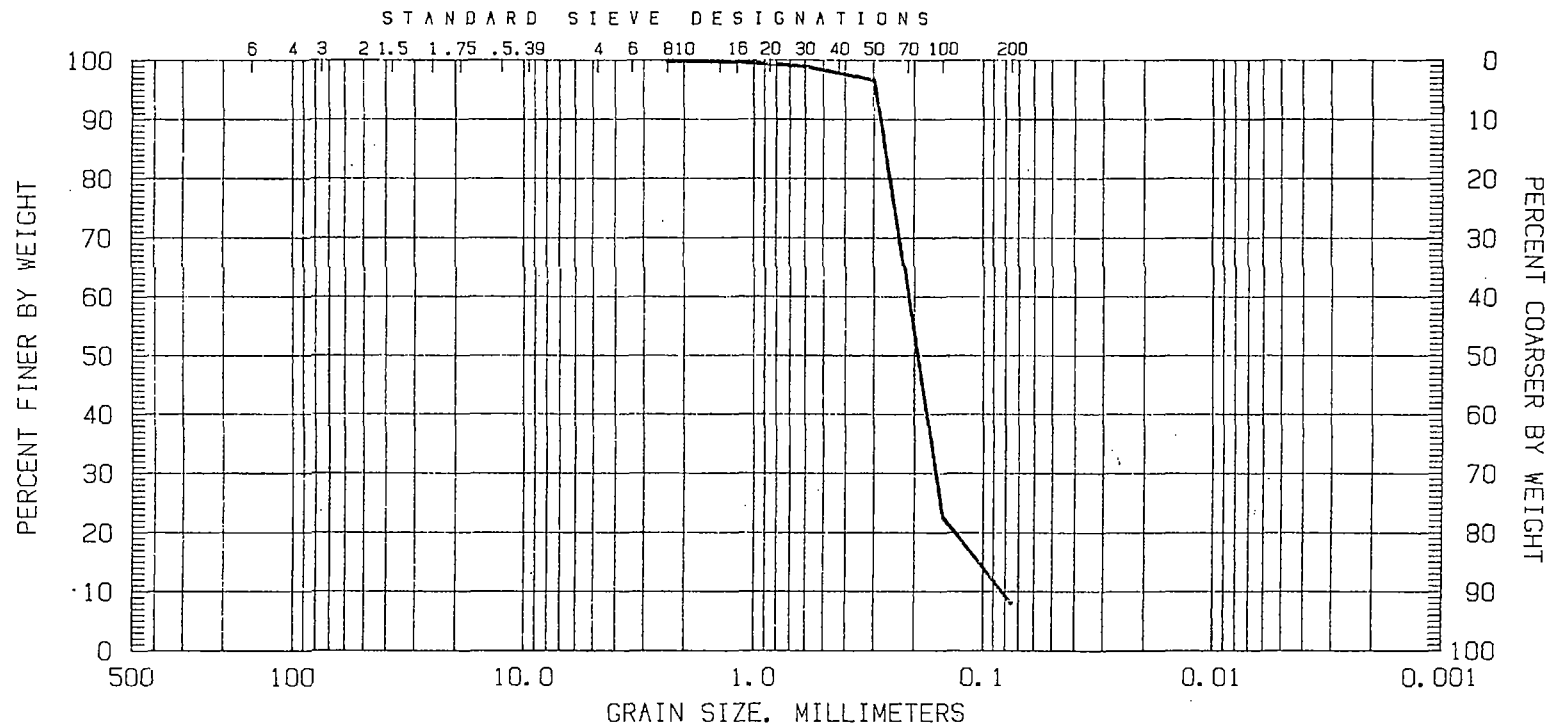
DATA CHECKED BY: HP



GEOLGIC ASSOCIATES, INC.

MMWPS002383

# GRAIN SIZE ANALYSIS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

PROJECT NO.: 83-0417  
 U.S. PIPE  
 MCI CONSULTING ENGINEERS  
 JANUARY 12, 1984  
 BORING: 5  
 DEPTH: 20.5-22.0 FT

SAMPLE: 5

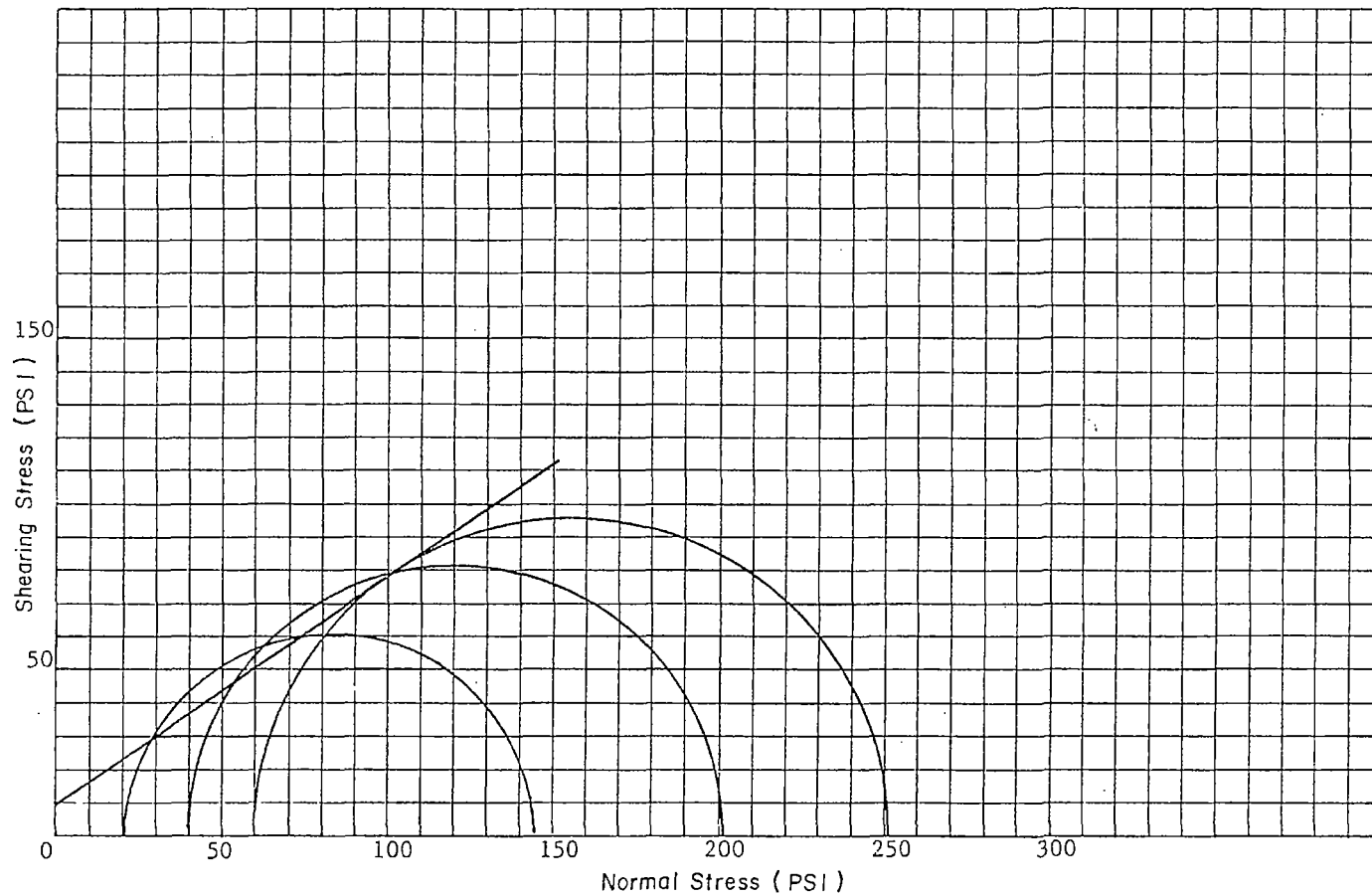
SAND, slightly silty, micaceous,  
 grayish-brown  
 NATURAL MOISTURE CONTENT= 32.3 %  
 REMARKS: USC=SP/SM



GEOLOGIC ASSOCIATES, INC.

MW/PS002384

MOHR DIAGRAMS —  $\phi$   
 CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (CD)



COHESION (c) 9 PSI  
 ANGLE OF INTERNAL FRICTION ( $\phi$ ) 35°

PROJECT U.S. Pipe Stability Analysis  
 HOLE 2 SAMPLE WASTE

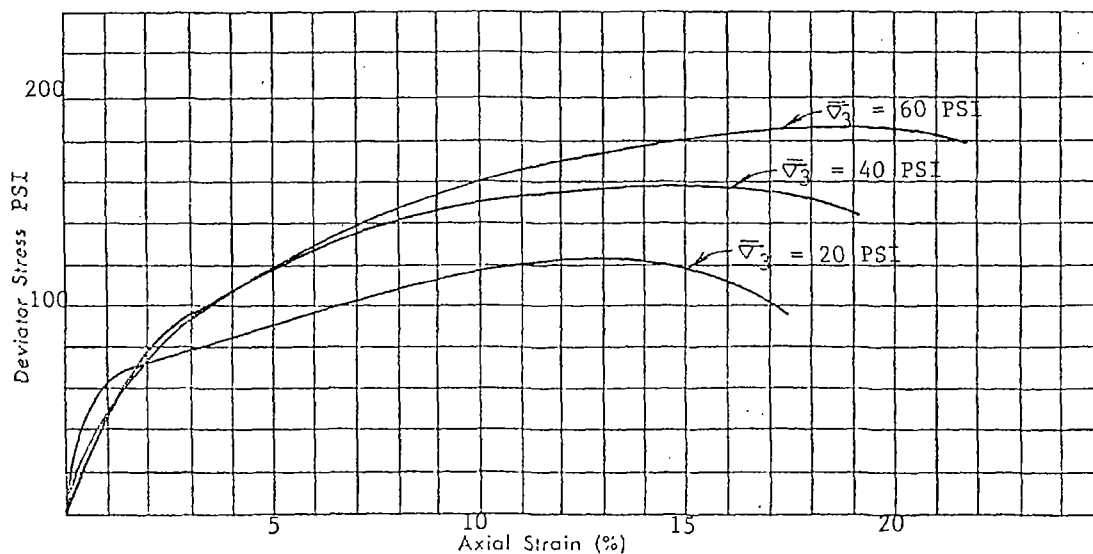
MWPS002385

# CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (CD)

Client Mining Consultants, Inc.  
 Project U.S. Pipe Landfill  
 Project No. 83-0417 DATE February, 1984  
 Sample Description Waste Material

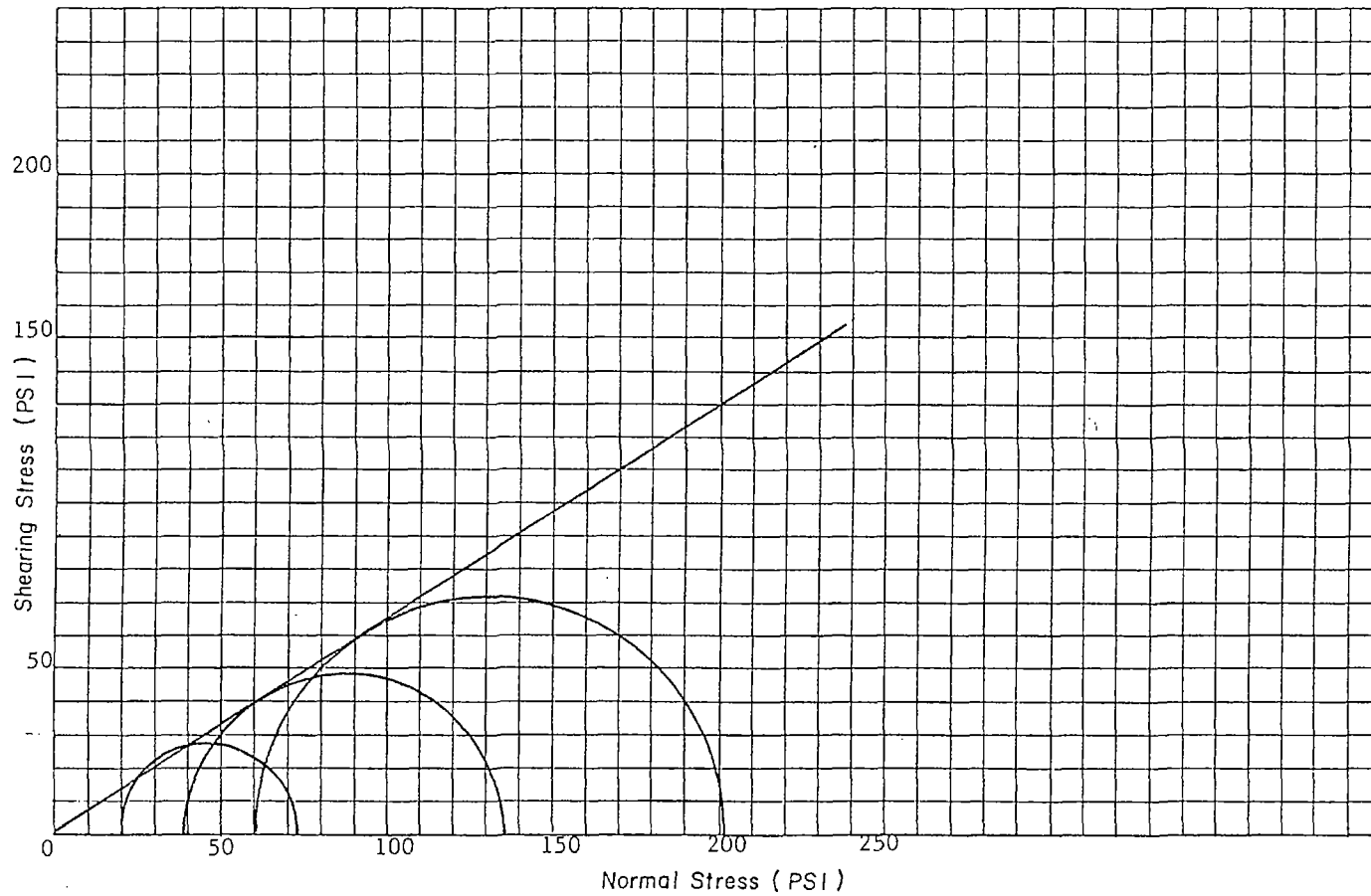
## INITIAL SAMPLE PROPERTIES

Property	Test 1	Test 2	Test 3
Boring No./Sample No.	<u>2/St-1</u>	<u>2/St-1</u>	<u>Remolded Sample</u>
Depth	<u>18.0'-20.0'</u>	<u>18.0'-20.0'</u>	
Consolidation Pressure PSI	<u>20</u>	<u>40</u>	<u>60</u>
Dry Unit Weight, PCF	<u>97.9</u>	<u>110.3</u>	<u>105.1</u>
Moisture Content, %	<u>18.4</u>	<u>12.7</u>	<u>14.1</u>
Volume, cu. ft.	<u>.0223</u>	<u>.0214</u>	<u>.0199</u>
Void Ratio	<u>0.696</u>	<u>0.505</u>	<u>0.579</u>
Saturation, %	<u>70.4</u>	<u>67.0</u>	<u>64.8</u>
Specific Gravity	<u>2.66</u>	<u>2.66</u>	<u>2.66</u>



STRESS — STRAIN CURVES

MOHR DIAGRAMS —  $\phi$   
 CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (cd)



COHESION (c) 0 P.S.I.

ANGLE OF INTERNAL FRICTION ( $\phi$ ) 33°

PROJECT U.S. Pipe Stability Analysis

HOLE 1 & 7 SAMPLE Alluvium

MWPS002387

# CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (CD)

Client Mining Consultants, Inc.

Project U.S. Pipe Landfill

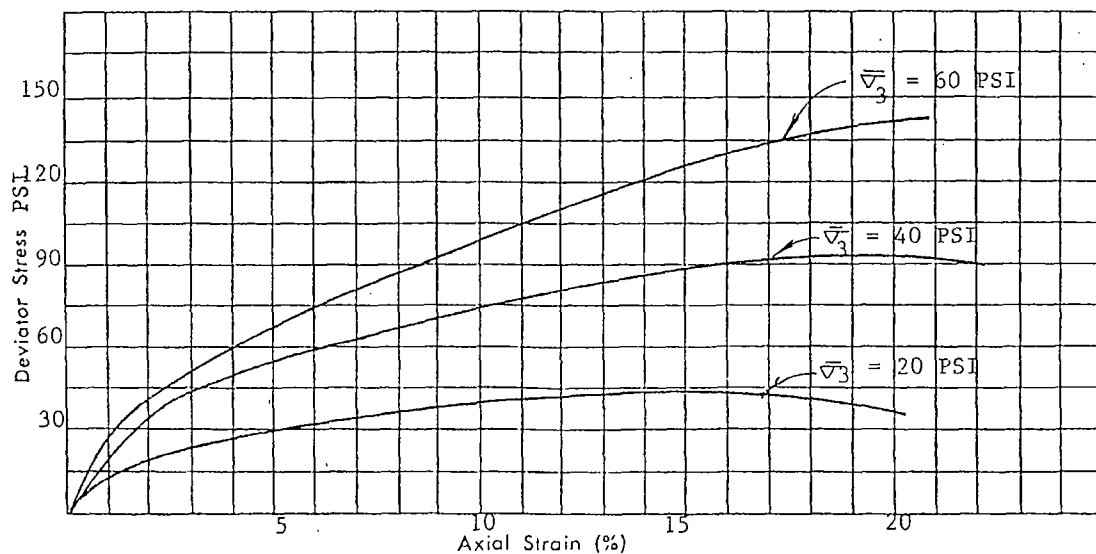
Project No. 83-0417

DATE February, 1984

Sample Description Alluvial Soil

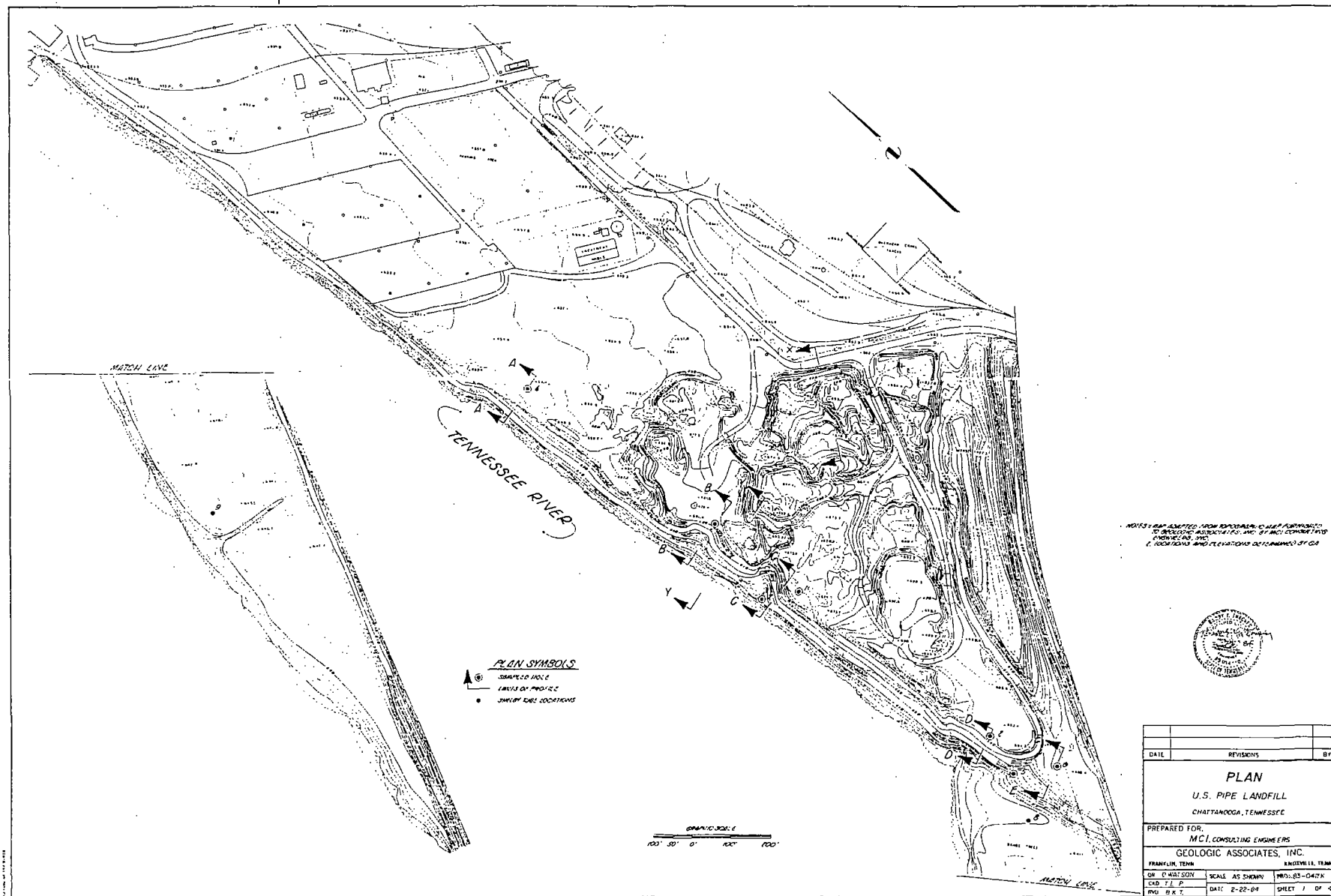
## INITIAL SAMPLE PROPERTIES

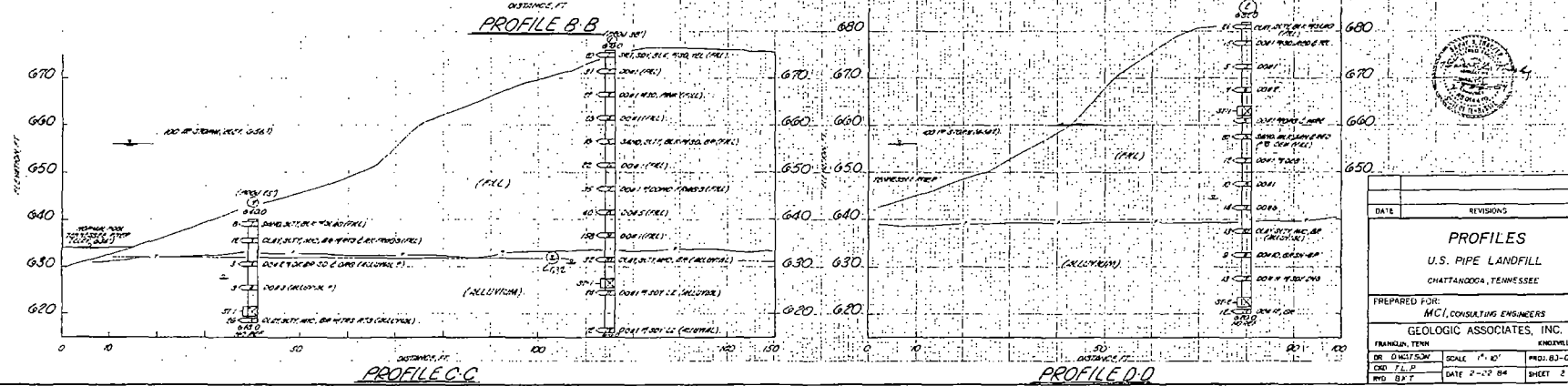
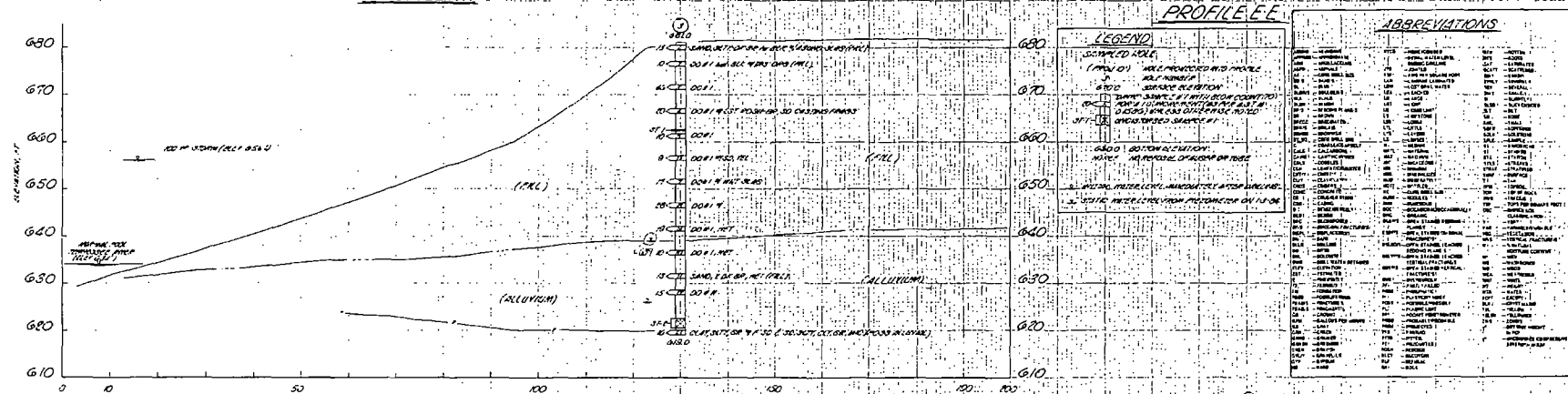
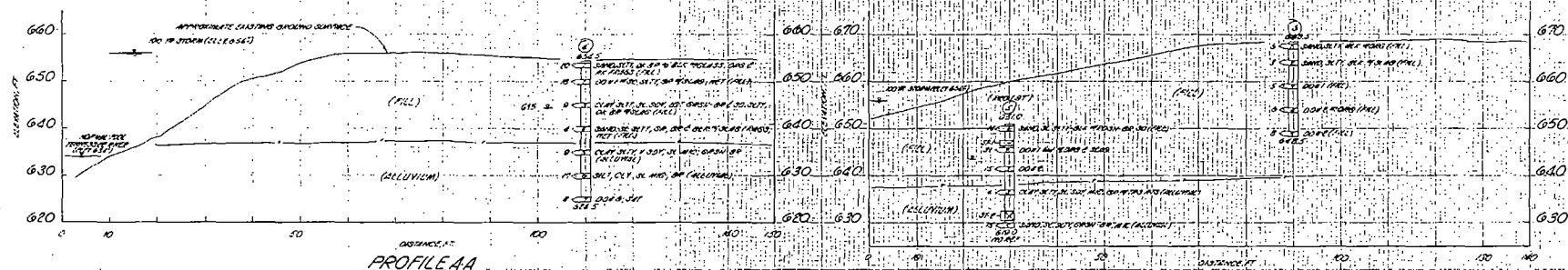
Property	Test 1	Test 2	Test 3
Boring No./Sample No.	7/St-1	7/St-1	1/St-1
Depth	18.5'-20.5'	18.5'-20.5'	48.5'-50.5'
Consolidation Pressure PSI	20	40	60
Dry Unit Weight, PCF	100.1	84.8	89.4
Moisture Content, %	25.5	37.6	31.1
Volume, cu. ft.	.01998	.0203	.0201
Void Ratio	.696	1.00	.871
Saturation, %	99.7	1.00	95.8
Specific Gravity	2.72	2.72	2.68



STRESS — STRAIN CURVES

SECTION 111





**LEGEND**

SYMBOLS AND ABBREVIATIONS

1. FILL (Hatched area)

2. RELEVATION (Dotted area)

3. ROAD (Solid line)

4. DRAINAGE (Dashed line)

5. ELEVATION (Numbered points)

6. DISTANCE (Scale bar)

7. PROFILE (Line graph)

8. LEGEND (Key)

9. ABBREVIATIONS (List)

10. SCALE (1" = 40')

11. DATE (2-2-84)

12. SHEET (2 OF 4)



REVISIONS		BY
DATE		

**PROFILES**

U.S. PIPE LANDFILL

CHATTANOOGA, TENNESSEE

PREPARED FOR:

MCI CONSULTING ENGINEERS

GEOLOGIC ASSOCIATES, INC.

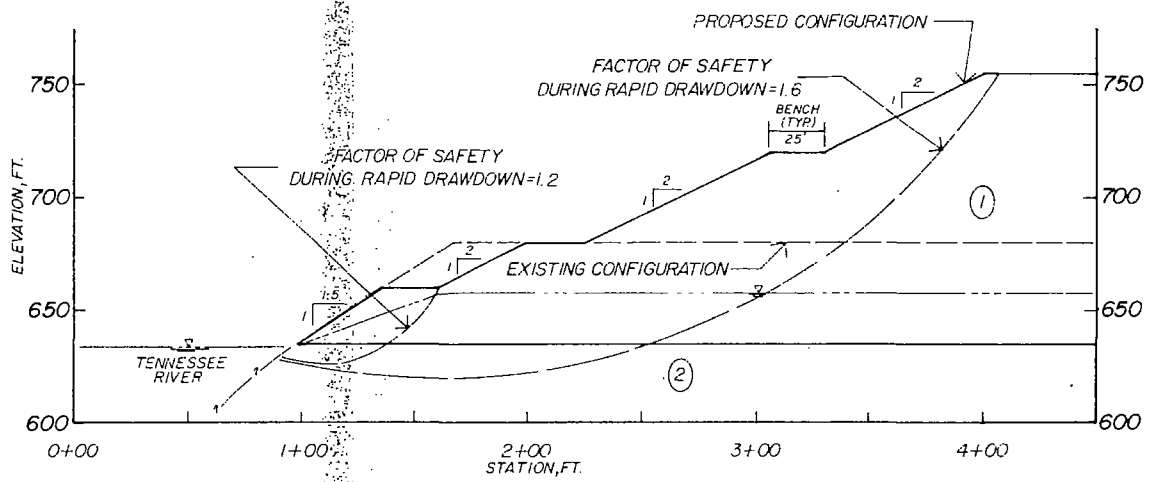
FRANKLIN, TENN. KNOXVILLE, TENN.

DR. G. H. T. S. W. SCALE: 1" = 40' PROJ. 83-0477K

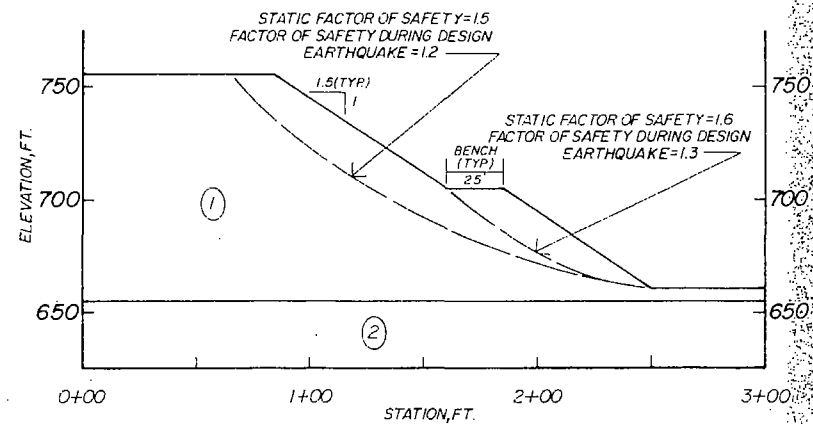
CDD: T. L. P. DATE: 2-2-84 SHEET: 2 OF 4

REV: 001

SOIL/WASTE PARAMETERS			
<b>① WASTE FILL</b>			
MOIST UNIT WEIGHT	120 p.c.f.		
SATURATED UNIT WEIGHT	125 p.c.f.		
EFFECTIVE COHESION	100 p.s.f.		
EFFECTIVE ANGLE OF INTERNAL FRICTION	35°		
<b>② ALLUVIAL</b>			
MOIST UNIT WEIGHT	120 p.c.f.		
SATURATED UNIT WEIGHT	125 p.c.f.		
EFFECTIVE COHESION	0 p.s.f.		
EFFECTIVE ANGLE OF INTERNAL FRICTION	33°		



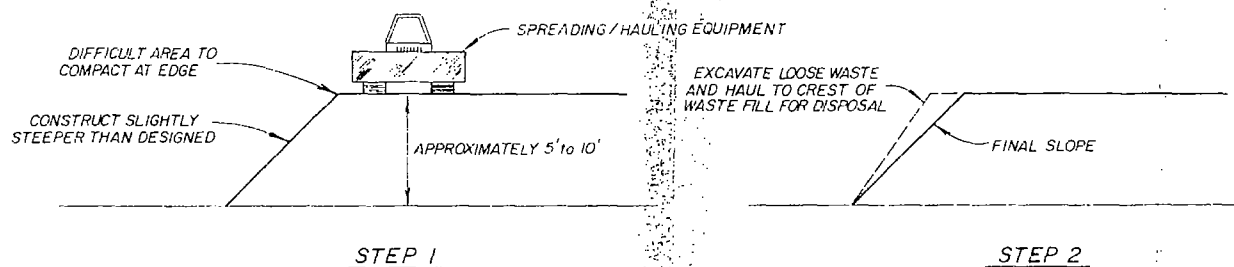
SECTION Y-Y



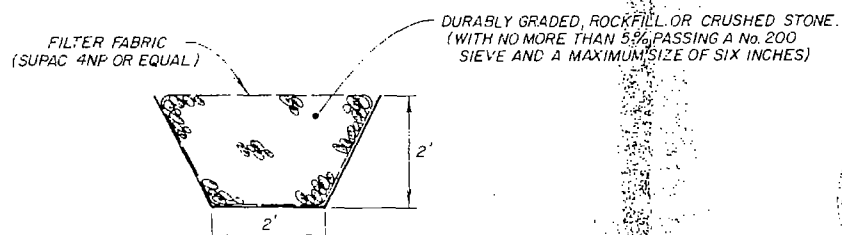
SECTION X-X



DATE	REVISIONS	BY
<p align="center"><b>STABILITY ANALYSIS</b>  <b>U.S. PIPE LANDFILL</b>          CHATTANOOGA, TENNESSEE</p>		
PREPARED FOR: <b>MCI, CONSULTING ENGINEERS</b> GEOLOGIC ASSOCIATES, INC. FRANKLIN, TENN. KNOXVILLE, TENN.		
DR. D. WATSON	SCALE: 1" = 50'	PROJ: 83-0417K
CKD: TLP	DATE: 2-22-84	SHEET: 3 OF 4
RVD: B.K.T.		



### SLOPE PREPARATION DETAIL



### DRAIN DETAIL



DATE	REVISIONS	BY
<p align="center"><b>DETAILS</b>  <b>U.S. PIPE LANDFILL</b>            CHATTANOOGA, TENNESSEE</p>		
<p>PREPARED FOR:  <b>MCI, CONSULTING ENGINEERS</b>  <b>GEOLOGIC ASSOCIATES, INC.</b></p>		
FRANKLIN, TENN.		KNOXVILLE, TENN.
DR. D. WATSON	SCALE NO SCALE	PROJ. 83-047K
CKD T.L.P.		
RYD. B.K.T.	DATE 2-22-84	SHEET 4 OF 4

## APPENDIX IV

U. S. Pipe  
Industrial Landfill  
Sediment Pond Calculations

Total drainage area to Sediment Pond = 15.0 acres

Use hydrologic soil Group B - Erosion and Sediment Control Handbook for Urban Areas and Construction Sites in Tennessee by SCS.

"Soils having moderate infiltration rates when thoroughly wetted. These consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission."

For cultivated - without conservation treatment

$$CN = 81 \quad (\text{assumes no cover, worst case})$$

$$CN = \frac{1000}{10+s} \quad Q = \frac{(P - 0.2(s))^2}{P + 0.8(s)}$$

$$81 = \frac{1000}{10+s} \quad Q = \frac{(5.2 - .2(2.35))^2}{5.2 + .8(2.35)}$$

$$10 + s = \frac{1000}{81} \quad Q = \frac{22.37}{7.08}$$

$$s = 12.35 - 10 \quad Q = 3.16 \text{ in.}$$

$$s = 2.35$$

$$\text{Runoff volume} = 3.16 \text{ in.} \times \frac{1 \text{ ft.}}{12 \text{ in.}} \times 15 \text{ ac.} \times 43,560 \frac{\text{sf.}}{\text{ac.}}$$

$$= 172,062 \text{ cubic feet}$$

$$10 \text{ Hour detention : } \left(\frac{10}{24}\right) 172,062 = 71,693$$

Sediment volume at 0.1 ac. - ft. per disturbed ac.

$$\text{Volume} = 0.1 \text{ ac - ft/ac} \times 15 \text{ ac.}$$

$$= 1.5 \text{ ac - ft.}$$

$$= 65,340$$

$$\text{Total volume required} = 71,693 \text{ cu. ft.}$$

$$+ 65,340 \text{ cu. ft.}$$

$$137,033 \text{ cu. ft.}$$

$$\text{Total volume available as designed} = 143,000$$

10 yr. Peak stage = El. 656  
Depth in spillway = 1 ft.  
Spillway Invert El. 655  
Depth = 10 ft.  
Pond Bottom El. 645 ft.

10 yr. Peak stage = El. 656  
Freeboard = 2 ft.  
Top of Berm El. 658

Spillway size by  
Broad crested weir formula

$$Q = CLH^{1.5} \quad \begin{array}{l} C = 3.087 \\ H = 1 \\ Q = 62.5 \text{ cfs} \end{array}$$

$$62.5 = 3.087 (L) (1)^{1.5}$$
$$L = 20.2 \text{ ft.}$$

use 20 ft.

Sediment clean out elevation:  
Sediment volume = 65,340 cu. ft.  
clean at 60% volume =  $\frac{x .60}{39,204 \text{ cu. ft.}}$

Bottom area = 8,700 s.f.

$$\text{Allowed sediment depth} = \frac{39,204}{8,700}$$
$$= 4.5 \text{ ft.}$$

Pond Bottom = El. 645  
Sediment Depth = 4.5 ft.  
Clean out at El. 649.5 ft.

Use for invert elevation of trickle tube

TABLE 1

U.S. PIPE AND FOUNDRY COMPANY  
INDUSTRIAL LANDFILL

## Drainage Ditch Design

Drainage Ditch	Total Area (Ac.)	Curve <sup>1</sup> Number	Qp <sup>2</sup> (cfs)	Length (ft.)	Top Elev.	Bottom Elev.	Slope (ft/ft)	Side Slope (H:V)	Depth <sup>3</sup> (ft.)	Capacity <sup>4</sup> (cfs)	Velocity (fps)	Material
1	3.01	80	12.0	740	663	660	0.004	2:1	1.9	13.6	1.9	Grass
2	1.26	80	5.0	840	694	663	0.037	3:1	0.8	6.4	3.3	Grass/Enkamat
3	6.78	80	27.0	300	705	664	0.137	2:1	1.3	28.8	8.5	Grass/Enkamat
4	5.23	80	22.0	760	716	704	0.007	2:1	2.1	23.4	2.7	Grass
5	1.12	80	4.5	440	733	704	0.041	3:1	0.7	4.7	3.2	Grass/Enkamat
6	2.83	80	11.5	860	722	716	0.007	3:1	1.4	12.4	2.1	Grass
7	1.04	80	4.0	450	673	664	0.029	3:1	0.7	4.0	2.7	Grass
8	0.35	80	4.0	320	660	659	0.003	2:1	1.3	4.3	1.3	Grass
9	3.77	80	15.5	1400	687	673	0.010	3:1	1.5	17.8	2.6	Grass
10	3.83	80	15.5	70	673	658	0.214	3:1	0.9	21.1	8.7	Grass/Enkamat
11	0.67	80	4.0	400	660	656	0.010	3:1	0.9	4.6	1.9	Grass
12	0.60	80	4.0	400	660	656	0.010	3:1	0.9	4.6	1.9	Grass
13	0.74	80	4.0	430	660	656	0.009	3:1	0.9	4.3	1.8	Grass
14	1.43	80	6.0	120	656	632	0.200	3:1	0.5	6.4	8.5	Rip-rap
15	0.61	80	4.0	380	660	656	0.011	3:1	0.9	4.6	1.9	Grass
16	0.79	80	4.0	60	656	637	0.317	3:1	0.5	7.4	9.9	Rip-rap
17	0.24	80	4.0	100	658	656	0.020	3:1	0.8	4.7	2.5	Grass
18	0.96	80	4.0	60	656	632	0.400	3:1	0.4	5.0	10.4	Rip-rap
19	1.00	80	4.0	240	672	648	0.100	3:1	0.6	4.9	4.5	Grass/Enkamat
20	2.0	80	8.0	310	648	644	0.012	2:1	1.3	8.5	2.5	Grass
21	0.32	80	4.0	150	647	644	0.020	2:1	0.9	4.1	2.6	Grass
22	2.27	80	9.0	730	647	637	0.013	2:1	1.4	10.9	2.8	Grass
23	3.06	80	12.2	100	637	632	0.050	3:1	0.9	15.2	6.3	Rip-rap
24	10.83	80	43.0	420	660	656	0.010	2:1	2.5	44.6	3.6	Grass/Enkamat

## NOTES:

- (1) Hydrologic Group B, without conservation treatment.
- (2) 10 year - 24 hour storm = 5.2 inches.
- (3) Add 0.3 feet freeboard
- (4) N = 0.045 for grass and N = 0.03 for rip-rap

TABLE 2

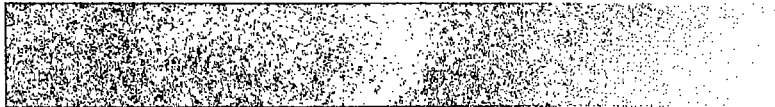
U.S. PIPE AND FOUNDRY COMPANY  
INDUSTRIAL LANDFILLCulvert Design

Culvert No.	Required Capacity (cfs)	Ditch No.	Diameter (inches)	Hw (ft)	Material	Length (ft.)
1	43.0	D1, D3, D7	36	4.0	C.M.P.	120
2	31.0	D3, D7	30	3.5	C.M.P.	35
3	26.5	D4, D5	30	3.5	C.M.P.	35
4	19.5	D10, D8	27	3.25	C.M.P.	40
5	15.5	D9	24	3.0	C.M.P.	50
6	8.0	D11, D17	18	2.5	C.M.P.	30
7	6.0	D12, D13	15	2.25	C.M.P.	30
8	12.6	D20, D21	21	2.75	C.M.P.	30
9	11.5	D6	21	2.75	C.M.P.	40

NOTE: Design as per nomograph for headwater depth for corrugated metal pipe culverts with inlet control.

Engineering, Design & Geosciences Group, Inc.

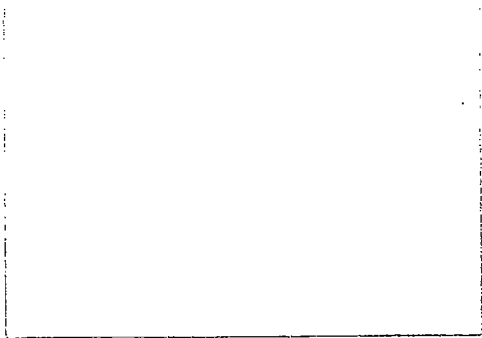
**EDGE**



Engineering, Design & Geosciences Group, Inc.



**EDGE**



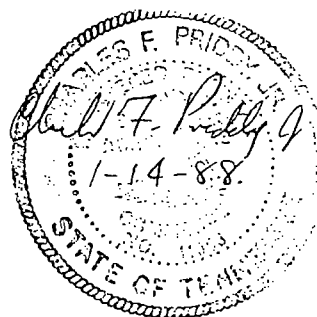
U.S. PIPE AND FOUNDRY COMPANY  
FOUNDRY LANDFILL  
CHATTANOOGA, TENNESSEE  
OPERATIONS MANUAL

Prepared by:

MCI Consulting Engineers, Inc.  
P. O. Box 22879  
725 Pellissippi Parkway  
Knoxville, Tennessee 37933-0879

MCI #21447920

January 15, 1988



*Reviewed on 1-18-88 per comments  
on preliminary plan of 1-11-88!  
D.W.*

MWPS002401

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APPENDIX II	Correspondence
APPENDIX III	Physical/Chemical Waste Characterization
APPENDIX IV	Geotechnical Engineering Study, Geologic Associates, Inc. Vegetation Recommendations - University of Tennessee Agricultural Extension Service
APPENDIX V	Monitoring Well Installation Report
APPENDIX VI	Hydrologic Calculations
ENCLOSURE	Construction Drawings

## 1.0 BACKGROUND INFORMATION

*page 1*

U.S. Pipe and Foundry Company operates two foundries in Chattanooga, Tennessee. Foundry sand, cupola slag, cupola baghouse dust, dried sludge, non-isocure core sand and demolition wastes generated at the Soil Pipe plant and the adjacent Valve and Fitting plant have been disposed on plant property along the Tennessee River (Nickajack Lake) for over 30 years. The Tennessee Department of Health and Environment, Division of Solid Waste Management (DSWM), conducted a geologic evaluation of the existing disposal site on June 8, 1983. Based on the results of their investigation, the DSWM classified the site geologically suitable (Appendix II) for disposal of inert foundry waste and requested that U.S. Pipe submit construction and operating plans for continued operation of the site. Accordingly, this manual was developed for registration of the existing U.S. Pipe and Foundry landfill in fulfillment of the "Regulations Governing Solid Waste Disposal in Tennessee".

## 2.0 DESCRIPTION OF OPERATION AND WASTE CHARACTERISTICS

Based on records provided by U.S. Pipe and Foundry, the total annual waste generated from both plants and disposed in the existing landfill consists of approximately 48,250 tons. Using an average waste density of 120 pounds per cubic foot (3240 pounds per cubic yard), the approximate yearly waste disposal volume is 30,000 cubic yards, or approximately 150 cubic yards per day (based on 50 weeks, 4 days/week). The types of waste currently disposed are listed as follows in Table 1:

Table 1  
Composition of Wastes

<u>Waste Type</u>		<u>Percent of Total</u>	
<u>Direct Disposal Wastes</u>			
1.	Non-Isocure Foundry Sand and Core Butts	77.5	80.0
2.	Slag	15.0	15.5
3.	General Plant Demolition Debris (No asbestos)	2.1	2.2
4.	Process Wastewater Treatment Sludge (No free liquids)	1.2	1.2
5.	Coke Fines	0.4	0.4
6.	Cleaning Room Wastes	0.3	0.3
7.	Ductile Treating Baghouse Dust	0.2	0.2
8.	Cement Lining Waste	0.2	0.2
Total Direct Disposal Wastes		96.9	100.0
<u>Special Wastes</u>			
1.	Waste Isocure Sand and Core Butts	1.5	48.4
2.	Cupola Baghouse Dust	1.5	48.4
3.	Brass Melting and Grinding Baghouse Dust	0.1	3.2
Total Special Wastes		3.1	100.00
Total		100.0	

The DSWM has presently approved the site for disposal of inert foundry waste only. The waste isocure sand, cupola baghouse dust and brass melting and grinding baghouse dust have been determined by DSWM to be non-inert special wastes, which cannot continue to be disposed of directly in the landfill. U.S. Pipe intends to stabilize the cupola baghouse dust and brass melting and grinding baghouse dust with a "Solifix" treatment system, which is scheduled to be operational by October 31, 1988. This system combines a mixture of lime kiln dust, baghouse dust, cement and a proprietary liquid called Solifix to make a non-leachable waste product. This stabilized waste will be also

*OK per  
Bill Frock  
on 1-6-88*

disposed of in the foundry waste landfill. At the time that U.S. Pipe receives registration of its landfill, it is planned to dispose of the waste isocure sand at City of Chattanooga's Summitt Sanitary Landfill.

Attached as Appendix III are copies of correspondence between U.S. Pipe and DSWM that describe in detail the physical/chemical characteristics of the waste streams from both plants.

### 3.0 SITE CONDITIONS

The landfill is located in Chattanooga along the east bank of the Tennessee River at mile 461.5, at north latitude 35°01'53" and west longitude 85°19'24". The proposed landfill comprises approximately 25 acres consisting of the existing 15 acre landfill area, 6 acres of storage yard north of the existing landfill and 4 acres of presently undeveloped area located south of the existing landfill. The property is owned by U.S. Pipe and Foundry. A location map (1" = 400') is provided in Appendix I.

The City of Chattanooga has installed a sanitary sewer collection system on the landfill site. There is a 36" diameter concrete sanitary sewer line along the eastern (river) side of the landfill boundary. On the western side, a (72") diameter combined (storm and sanitary) sewer enters a regulator chamber. During dry weather, all of the contents of the (72")

78"

sewer empty into a 21" diameter sanitary sewer at the regulator chamber, which runs under the existing landfill to the 36" sanitary sewer. During wet weather, the excess combined wastewater which cannot enter the 21" sewer overflows out of the regulator chamber into a ditch along the western border of the landfill, which previously ran along the southern edge of the landfill to the Tennessee River. In 1977, U.S. Pipe installed approximately 450 feet of 78" diameter corrugated metal pipe across the landfill to accommodate the combined sewer overflow to the river and to allow placement of waste over and south of the 78" pipe. This pipe also appears to be functioning as an outlet for rain water which has infiltrated the landfill, as the pipe usually is discharging water even when the inlet is dry. This sewer system is shown on the location map and construction plans. No problems have been reported with the pipes under the landfill.

In November, 1987 U.S. Pipe began regrading the existing waste in accordance with site stabilization procedures requested by DSWM. This work is shown as Phase I in the construction drawings. The work included grading the top of the landfill to prevent ponding, and outside slopes, with the exception of the river slope, to 2:1. The river slope was left alone, as vegetation has been established. A 12' access road has been cut along the regulator chamber and drainage ditch on the west border. Two rock dams were also constructed, and much of the slopes have been seeded with winter rye grass. This work is on-going as of the submittal date of this report and has provided U.S. Pipe with useful

experience in grading operations affecting drainage and sediment control.

Based on information provided by the Tennessee Valley Authority (TVA), the elevation of the 100-year flood at the site is 656 feet mean sea level (msl). TVA maintains floodway easement rights to elevation 636 msl (normal pool) and recognizes EL 640 as the maximum shoreline contour. Based on conversations with representatives of the City of Chattanooga and the Corps of Engineers, no permits will be required by those agencies for filling in the 100-year floodplain above elevation 636 msl provided that no structures are constructed. The structure profile is elevation 656 msl. This information was obtained from the following individuals:

John Case, Corps of Engineers, Nashville, Regulatory Functions Branch

Fred Brunker, Chattanooga Planning Commission

Tom Scott, Chattanooga City Engineer

Roy McCollum, Chattanooga Building Inspector

Maximum utilization of the site requires filling below the 640 contour in one location, immediately south of the existing operations. A TVA Section 26A permit has been determined to be required and application has been made (see Appendix II). Upon approval of the landfill area by \*DSWM, U.S. Pipe will execute the 26A permit with TVA. No new wastes will be placed within 50 feet of the 636 contour.

A letter from Mr. Treasure Rogers of TVA to Mr. Bill Krispin of the DSWM and letters confirming our conversations with the remaining individuals are provided in Appendix II.

### 3.1 Preliminary Regulatory Approval

Site and subsurface conditions have been described previously in reports prepared by the DSWM. Basically, the site was approved for disposal of inert foundry waste generated at the Chattanooga facilities. Restrictions for use are outlined in a letter from the DSWM dated August 9, 1983. A copy of the letter is provided in Appendix II.

### 4.0 CONSTRUCTION AND OPERATION

The landfill will be used for disposal of waste generated at the Chattanooga facilities only. Further, the landfill will be constructed in a planned sequence, thereby allowing U.S. Pipe to reclaim (establish vegetative growth) disturbed areas as construction progresses.

Outslopes will be constructed at the specified slopes provided in the construction plans. Geologic Associates, Inc. (GA) has performed a geotechnical engineering study, which includes a detailed stability analysis of the outslope material, in order to evaluate the suitability of existing slopes and to recommend safe slopes and specific operating

criteria for continued landfilling. A copy of GA's report is provided in Appendix IV.<sup>v</sup>

#### 4.1 Fill Operations

The landfill is divided into four operational phases: I) the existing landfill, which has recently been regraded and seeded for site stabilization, II) the undeveloped area located immediately south of the existing landfill, III) the storage yard north of the existing landfill and IV) the placement of wastes on top of Phases I and III. Phase I grading included a 25' wide terrace along the western access road for added slope stability as discussed in GA's stability analysis (Appendix IV). Phase III includes initial construction of a 25' wide terrace for Phase IV. Details for construction of each phase are provided in the Construction Plans, included as an attachment to this report. Generally, in Phases II and III, the wastes will be dumped from the top of an existing fill area to the outslope of the existing fill, progressing outward to the landfill border. Phase IV will be developed from one end of the landfill, with the waste pushed and shaped to a working face, with "cells" constructed for additional waste placement to the final contours. Bulky waste core butts and dusts will be placed in the interior of the landfill, with foundry sand used for cover.

Drainage ditches and rock dams will be installed for each phase as shown on the construction drawings. The drainage and sedimentation control facilities are more fully discussed in section 7.

#### 4.2 Cover and Final Grading

Based on the composition of the wastes disposed, daily and final soil cover will not be required. This is addressed in correspondence from DSWM dated February 2, 1987 and included in Appendix IV. However, coke fines, baghouse dust, wastewater sludge, and demolition wastes will be immediately covered with foundry sand. Sufficient foundry sand will be stockpiled adjacent to the active area of the landfill for this purpose. The site will be graded in accordance with the final contours shown on Sheets 2, 3 and 4 of the plans.

The exterior limits of the site will be constructed to final grade as landfiling progresses upward. Foundry sand will be placed near the outslopes for added stability, while demolition debris, sludge and dust will be placed near the center of the fill. Wastes will be placed in lifts no thicker than 18 inches and compacted with the hauling and spreading equipment. In order to achieve added stability, outslopes will be shaped at a slightly steeper inclination than designed and compacted. The slopes should then be graded to their design configuration and immediately seeded and

mulched. In this manner, wastes difficult to compact can be removed to prevent surficial sloughing of material. A detailed description of the outslope construction procedures is included in the appended report prepared by Geologic Associates, Inc. (see Appendix IV). Recommendations by the University of Tennessee Agricultural Extension Service for seeding, fertilization and establishment of vegetative cover is also included in Appendix IV.

#### 4.3 Access Roads

In Phases II and III, waste will initially be placed to construct access roads, as indicated on the drawings. Roads providing access to the landfill will be constructed of compacted foundry sand. The access road slopes are to be a maximum of 5 - 6%. The roads will be maintained to provide all-weather access into the site and to safely accommodate truck traffic using the site. Only in-plant roads are used to transport material to the landfill.

#### 5.0 OPERATING EQUIPMENT

Waste from both plants is hauled throughout the operating day to the site with tandem axle dump trucks. In Phases II and III, the trucks will dump the waste from existing fill areas against the outer face. In Phase IV, the trucks will dump the waste on top of the fill, with front

end loaders shaping the waste into cells and berms. U.S. Pipe uses Dresser 580 or Caterpillar 920 front-end loaders to spread, grade and compact the waste and to construct berms. This machinery is available on a full-time basis. In the event of equipment breakdown, U.S. Pipe will use similar plant equipment or obtain suitable rental equipment.

#### 6.0 PROJECTED REFUSE AND COVER VOLUMES

Based on our calculations, a total volume of approximately 540,000 cubic yards is available for disposal of industrial waste from the Chattanooga facilities. The undeveloped area located south of the existing fill represents approximately 86,000 cubic yards of this volume. Based on a yearly disposal volume of 30,000 cubic yards, the site could be used by U.S. Pipe for approximately 18 years. This is more fully tabulated in Table 2:

Table 2  
Projected Landfill Capacities

<u>PHASE</u>	<u>ACREAGE</u> <u>AC.</u>	<u>VOLUME</u> <u>(CUBIC YARDS)</u>	<u>PROJECTED LIFE</u> <u>(YEARS)</u>	<u>ACREAGE</u> <u>USED EACH</u> <u>YEAR</u>
I	14.2	664,000	Filled	-
II	3.6	86,000	2.9	1.2
III	5.1	301,000	10.0	0.5
IV	0	153,000	5.1	0
Subtotal	22.9	1,204,000	18.0	-
Other Areas (Non-Fill Access Roads, Rock Dams)	2.2	0	0	-
TOTAL	25.1	1,204,000	18.0	-

#### 7.0 DRAINAGE FACILITIES

Drainage features for the landfill consist of terraces, ditches, culverts and rock dams. The site is graded to promote positive drainage and to prevent ponding. Timely vegetation will be used to reduce the amount of sediment generated.

The foundry sand in this landfill allows for a different approach for sediment control than might be used in a sanitary landfill. Because of the density of the material, a rock dam was constructed during Phase 1 grading to obtain field experience in the adequacy of these structures, as well as to control sediment runoff during construction. The rock dam allows water to "filter" through the rocks, thereby retaining sediment. As an added precaution, a smaller rock dam was constructed upstream of a larger rock dam (in the vicinity of Monitoring Well #1). Since construction of these dams, several heavy rainfall events have occurred, totaling over 4 inches of precipitation, and sediment has not broken through the small dam.

Another dam was also constructed where stabilization of the river slope was conducted (see Sheet 2). Success with these structures is the basis for recommending these structures for sediment control. Three additional rock dams are proposed as shown on the drawings and one temporary dam in Phase 1. It is proposed to size these structures "to fit" in the field, but to obtain the approximate scaled size as shown on

the drawings. If needed the ponds can be readily enlarged. Typical details of the dams are shown on Sheet 6 of the drawings. Silt should be removed from the dams when it is within one foot of being full.

Drainage ditches and culverts have been designed to accommodate a peak runoff flow resulting from a 10-year, 24-hour storm. Because of the high permeability of the waste, a "c" of 0.4 was used in the Rational Formula for rainfall/runoff correlation. Calculations for these facilities are provided in Appendix VI. Details are shown on Sheet 6 of the drawings.

It is proposed to line the ditches with either "Enkamat" (or equal) or rip-rap. Ditch construction during Phase 1 grading demonstrated that rip-rap lining of ditches is effective in controlling ditch erosion. Very steep ditches will be lined with rock as shown on the drawings.

## 8.0 ADMINISTRATIVE GUIDELINES

### 8.1 Supervision of Operation

The landfill is operated under the supervision of the Supervisor of Stores and Yard. The supervisor should verify that the site is operated in a safe and environmentally sound manner. The supervisor will be thoroughly familiar with the landfill construction plans and will be able to familiarize any operator with the plans.

#### 8.2 Accident Prevention and Safety

The supervisor has an obligation to maintain safe and secure working conditions for all landfill personnel. This obligation includes that plant safety rules are written, published and given to each employee. First aid supplies for treatment of routine minor injuries will be provided at the site.

#### 8.3 Landfill Records and Reports

Records of the activity at the landfill and inspection forms are maintained by the supervisor. Records of surface and groundwater analyses will be maintained and kept in the supervisor's office.

#### 8.4 Landfill Sign

A sign will be provided at the main entrance to the landfill for identification of acceptable wastes. The sign will also state that no sanitary, hazardous, liquid or unauthorized waste will be disposed of.

#### 8.5 Site Access and Control

A chain link fence and the Tennessee River completely enclose the site. Access to the site is from plant property only, which is fenced and posted.

#### 8.6 On-Site Structures

Landfill operating personnel will use existing plant structures for heat and toilet facilities. There are no permanent or portable structures within the landfill boundary.

#### 8.7 Future Planning

By May 1 of each year, U.S. Pipe will file an estimate of the remaining acreage of the landfill with the DSWM. This report will include the original usable acreage of the site and the remaining unused portion at the time of the report.

#### 8.8 Landfill Closure

An inspection of the entire site shall be conducted by a representative of the DSWM before the site is closed. Any necessary corrective work shall be performed before the closure project is accepted. Arrangements satisfactory to the DSWM shall be made for repair of all cracked, eroded, and uneven areas in the surface during the year following closure of the fill. Upon completion, the landfill site shall be recorded with the Register of Deeds as a former landfill site.

9.0 ENVIRONMENTAL CONSIDERATIONS

9.1 Dust Control

Grass will be planted over finished areas to minimize blowing dust. Water will be applied to the roads during abnormally dry conditions as needed to control excessive dust. As previously stated, baghouse dusts and other fines will be immediately covered with foundry sand for dust control.

9.2 Blowing Litter

Putrescible trash (litter) is not disposed in the landfill.

9.3 Open Burning

No refuse will be burned at the landfill site. In the event accidental fires occur, the fire will be extinguished by smothering or by plant fire protection personnel.

9.4 Salvaging

No salvaging will be allowed at the landfill site without obtaining prior permission from the DSWM.

9.5 Special Waste Handling

No special wastes other than the wastes approved for disposal by the DSWM will be accepted at the landfill.

9.6 Vector Control

Putrescible waste is not disposed in the landfill.

9.7 Odor Control

Due to the nature of the wastes disposed, no odor problems are anticipated.

9.8 Unauthorized Dumping

Unauthorized dumping will not be allowed.

9.9 Domestic Animals

Domestic animal access to the site is controlled by the chain link fence and the river enclosing the site. No domestic animals will be disposed at the site.

#### 9.10 Contamination Control

As stated in the landfill regulations (Rule 1200-1-7-.06(3)16), "There shall be no contamination of ground or surface waters resulting from deposited solid wastes or their products of decomposition, nor hazard or nuisance caused by gases or other products generated by the biologically or chemically active wastes. Should any liquids or gases which might contaminate ground or surface water or create a hazard or nuisance be released from a registered industrial landfill, then those measures necessary to eliminate the contamination or nuisance shall be initiated immediately by the registrant. All gaseous or liquid waste discharges shall comply with the existing 'Water Quality Control Act of 1971' (T.C.A. 70-324, et seq.) and the provisions of the 'Tennessee Air Quality Act' (TCA. 53-3408, et seq.). Prior approval should be received from the DSWM before initiating control procedures which require alteration of the approved operating plan."

#### 10.0 MONITORING REQUIREMENTS

The surface discharge pipe and two monitoring wells will be used for monitoring of phenols and any other parameters deemed necessary by the DSWM. Monitoring will be conducted on a quarterly basis.

Monitoring wells have been installed as recorded in a report entitled "Monitoring Well Installation Report", included as Appendix V.

The surface discharge pipe running under the present southern end of the landfill has also been sampled. Results of analyses from this point and the monitoring wells are presented as Table 3. Only Total Organic Carbon from Well No. 1 is unusually high. This may be influenced by the nearby sanitary sewer line.

#### 11.0 REVEGETATION OPERATIONS

After each portion of the landfill is completed to final grade, the area will be immediately seeded and mulched in accordance with recommendation by the University of Tennessee Agricultural Extension Service, included in Appendix IV.

TABLE 3  
SUMMARY OF WATER ANALYSES  
MONITORING WELL NO. 1  
(Downgradient)

Parameter/Sample Date	04/24/85	05/20/85	05/28/85	12/09/85	10/27/87	Average
pH	7.6	7.0	7.1	-	-	7.2
Temp. °C	13.9	15.1	-	-	-	14.5
Conductivity umhos/cm	2,300	2,300	-	-	-	2,300
Total Cadmium	0.001	0.004	0.002	0.001	0.009	0.003
Cyanide	-	-	-	0.01	0.01	0.01
Formaldehyde	-	-	-	0.45	0.1	0.28
Total Iron	2.4	0.19	0.21	21	15	7.8
Total Lead	0.01	0.012	0.010	0.01	0.14	0.01
Phenols	0.05	0.016	0.020	0.03	0.02	0.03
Toluene	-	-	-	-	0.0001	0.0001
Total Organic Carbon	278	180	160	220	210	210

MONITORING WELL NO. 2  
(Upgradient)

Parameter/Sample Date	04/24/85	12/09/85	10/27/87	Average
pH	7.8	-	-	-
Temp. °C	16.2	-	-	-
Conductivity umhos/cm	670	-	-	-
Total Cadmium	0.001	0.001	0.007	0.003
Cyanide	-	0.01	0.03	0.02
Formaldehyde	-	0.05	0.1	0.08
Total Iron	4.4	29	34	22
Total Lead	0.01	0.05	0.22	0.09
Phenols	0.01	0.01	0.007	0.009
Toluene	-	-	0.0001	0.0001
Total Organic Carbon	15	10	35	20

TABLE 3 (Con't.)  
SUMMARY OF WATER ANALYSES  
SURFACE WATER DISCHARGE PIPE

<u>Parameter/Sample Date</u>	<u>03/26/87</u>	<u>10/27/87</u>
pH	7.2	
Total Cadmium	0.002	0.001
Cyanide	-	0.01
Formaldehyde	-	0.01
Total Iron	1.1	2.1
Total Lead	0.012	0.06
Phenols	0.002	0.007
Toluene	-	0.001
Total Organic Carbon	5	44
Total Chromium	0.003	-